THE BOOK OF
· THE HOME ·

THE BOOK·OF·THE HOME

A Comprehensive·Guide·on·all matters·pertaining·to·the·Household

NEW·EDITION

Prepared under the Editorship of

Mrs. C·E·HUMPHRY

("*Madge*" of *Truth*)

With Contributions by Many Specialists

VOLUME II

The·GRESHAM·Publishing·Company
34 *and* 35 Southampton·Street·Strand
LONDON

CONTENTS.

VOLUME II.

FINAL DECORATION.

HEATING AND LIGHTING.

THE ENGAGEMENT OF SERVANTS.

THE LAW OF MASTER AND SERVANT.

THE TREATMENT OF SERVANTS.

SERVANTS AND THEIR DUTIES.

SPRING-CLEANING.

COOK'S DEPARTMENT.

THE LARDER.

THE STORE CUPBOARD.

LIST OF PLATES.

VOLUME II.

FINAL DECORATION.

PICTURES.

Selection.—In no department of the furnishing of the home is there greater scope for the exercise of taste than in the selection of pictures. Most people, being only tenants and not owners of their houses, have to make the best of whatever permanent embellishments the buildings may contain, but in the matter of pictures there is free choice for all, and the man of taste, even if his purse is not a long one, may surround himself with work of undoubted excellence, which will give pleasure to himself and his friends. In these days of artistic education it is perhaps unnecessary to say much as to how "not to do it": it will suffice to condemn in passing bad German lithographs, gaudy chromos, insipid oleographs, and inferior photographs. Blank walls are better than such things, and a good wall-paper is better to look upon than a bad picture.

As regards what should be selected, it may be first noted that no picture should be hung without a reason, such as its artistic merit, or some particular association of pleasure or interest attaching to it. Under the latter head, of course, come family portraits and photographs and views of places, not particularly artistic, but still having their legitimate place in the home. It is only with regard to those works which are to be selected by reason of their merits that general advice can be given, and for convenience they will be considered under the two divisions of originals and copies or reproductions.

Original Works.—The most valuable of artistic possessions are, of course, originals; but it must be remembered that a good reproduction is better than a bad original, and that by modern processes we are placed in possession, at a very moderate cost, of the most faithful transcripts of the greatest art of all ages and countries. Originals are principally to be found in the form of oil paintings and water-colour drawings, pastels, and monochromes, the last including pen-and-ink, charcoal, chalk, and pencil sketches, and also etchings. In the department of oil paintings there are the old and modern masters, but about the former it is only necessary here to say that the price of good specimens places them quite out of the reach of the ordinary householder, while the bad ones are dear at any price, and, together with the many forgeries and fabrications that abound, are only fit for the mock auction and the shops of the fifth-rate dealer, in respect of both of which the inexperienced picture-buyer may be warned. Unless

the subject or execution gives him some particular pleasure, he had better not waste his money on anything purporting to be an "old master". The very best of modern pictures also command such high prices that few men can own a Leighton or a Millais, but there is every year produced an immense quantity of sound artistic work which may be purchased from the exhibitions or from the artists themselves at prices ranging from £10 to £100.

The national art of water-colour is, roughly speaking, a hundred and fifty years old. Good examples of the earlier masters are, of course, expensive, but there is an abundance of good modern art to be obtained at prices varying from £1 to £50. It is generally cheaper to buy direct from the artist than from exhibitions or dealers, as the intermediate profits are thus saved.

In these days of copious illustration of all kinds of publications there are also innumerable monochromatic and other drawings, which, when they have served their purpose, may be purchased very cheaply from artists and publishers. At annual exhibitions work of this kind done by good artists for periodical publications is disposed of at prices varying from a few shillings to a few pounds.

Copies and Reproductions.—Next in value to good originals are good copies or reproductions of them. The first of these are very rare, as really clever artists naturally prefer to do original work of their own, while second-rate copies are generally a mere caricature. Many brilliant men have, however, devoted themselves to the reproduction, by the various processes of engraving, of the pictures of great artists, and the steel and copperplate engravings, line work, mezzotints, and etchings produced by them form beautiful and not expensive decorations for the home. Owing to the fragility of paper and to other causes, fine plates more than a hundred years old are rare and costly, but the ordinary individual may possess some very fair specimens if he is not particular about width of margins and other matters which appeal principally to the connoisseur. Though the great school of line engravers of the nineteenth century has been almost, if not entirely, killed by the much more rapid and cheaper methods of modern photographic reproduction, many fine examples still exist, and increase in value with every year. Indeed, it is probable that a well-chosen collection made now would prove a profitable investment. Old prints, plain or coloured, command very high prices, and are greatly esteemed by collectors.

In this connection must be mentioned the Art Union of London, which for a long series of years did much by the issue of fine plates to keep the art of steel engraving alive, and still, although it has naturally fallen into line with more modern processes, continues to provide good art for the home. The annual subscription is one guinea, for which the subscriber receives a copy of the engraving of the year and a chance in the distribution of prizes, which consist of objects of art of very considerable value. The address of the society is 266, Strand, and it has agents in most of the large towns.

By far the most popular forms of hand-engraving are mezzotint and etching. In both, many reproductions of old and modern masters are published by the leading firms. The prices of good engravings range from one to ten guineas.

In the various photo-mechanical processes, such as photogravure, heliogravure, goupilogravure, the photographic camera is substituted for the hand, and the action of light and of acids is used to produce an image on the metal plate. These processes have the advantage of giving an exact rendering of the handling and brush-work of the original artist, but also the disadvantage that photography does not always translate correctly into black-and-white the colour-values of the original pictures. Hence opinion on the artistic merits of these reproductions differs. On the whole, however, they produce good renderings, and at prices less than those of hand engravings, varying from five shillings to as many pounds.

In the same category must be placed photographic reproductions in which prints are made direct from the original negatives. The carbon-process gives monochromatic prints in a variety of tints, black, red, chalk, sepia, blue, green, and purple, and the platinotype in a very fine and soft black.

Framing.—The functions of a frame are to protect a picture and to cut it off from its surroundings so that it may be contemplated without distraction of the eye. The choice must therefore be affected by the medium, the character of the subject, and the position it is to occupy. Oil paintings and large water-colour drawings are generally best framed close (*i.e.* without margin) in gold frames, while small water-colours also look well in gold, but generally need a gold mount to protect them from immediate contact with the patterns of the wall-paper. For engravings, etchings, photogravures, and black-and-white work generally, black or brown frames are usually best, the latter being of rose-wood, oak, or walnut, or other woods stained to the required tint. For black prints, black or dark-green frames look well, and in all cases the frames should be wide enough to support the dark parts of the picture; the darker the work the darker should be the frame. Engravings are usually framed with the whole of their margins visible, except in cases where the latter are old and defective, when they may be covered with glass enamelled in black and gold lines, a treatment very suitable for stipple engravings in the "Bartolozzi" style. For them, and for antique engravings generally, there are now made several special reproductions of old mouldings.

Direct photographic reproductions in carbon, autotype, or platinotype, if large, should be framed without margins; if small, they are best placed upon or under mounts of brown or gray tint, chosen to harmonize with the colour of the prints, and sufficiently dark not to compete with the high lights of the subject. White mounts are liable to kill any photograph in this respect.

The frame should, also, be suitable to the subject of the picture, but at the same time never obtrusively so, its function being merely to complete

and not compete with the picture. Fairly plain frames are generally best, and whatever ornament they contain must be simple as well as appropriate. The mouldings, for instance, for a frame for an architectural subject should be architectural in character, and Gothic or classic in form according to the style of the subject. The very beautiful frames of this kind, designed by Leighton and Poynter for their classic pictures, are cases in point, and will be remembered by Academy visitors. Oil paintings generally require heavier frames than water-colours, and portraits and dark interiors will bear wider mouldings than light and delicate landscapes. For some subjects of fruit and flowers, carved Florentine frames are very suitable, and for shipping subjects a rope pattern often forms a not inappropriate portion of the moulding.

There remains to be considered the question of position. In rooms and interiors of a decidedly architectural character the frames may well be made to correspond with and form part of the general scheme, harmonizing with its style and period. The best background for pictures is a plain paper, or one of very small pattern, preferably geometrical; large or naturalistic patterns are destructive of pictorial effect.

Another important point is that all pictures should be glazed. In the case of oil paintings the use of glass is sometimes objected to as causing reflections, but this is only a serious inconvenience in large galleries lighted entirely from the top, and the benefits of preserving the picture from dust, dirt, and injury far outweigh the objections even there. The glass should also be glued into the frame, and the whole covered and made air-tight at the back, care, of course, being taken that glass, canvas, and mount are all perfectly dry before the back is finally made up. The surface of the picture should not be in contact with the glass. To prevent this, the slip may be put beneath the glass in close-framed pictures; cut-out or sunk mounts afford the necessary protection. In all cases the glass should be flat, colourless, and free from bubbles and defects.

Distribution.—In arranging the distribution of pictures in the various parts of the house, it is usually best to keep each kind of work as much as possible together, and apart from others that differ from it. If oils, water-colours, and monochromes are placed indiscriminately together, the oils will probably look too coarse, solid, and heavy in comparison with the delicate water-colours, which in their turn will appear pale and feeble by the side of the more solid oils, while, in the presence of either, engravings and monochromes may seem cold and ineffective on account of the absence of colour.

This rule of separation cannot always be rigidly followed in small houses, but in the main arrangement oil paintings may be appropriately placed in the dining-room and hall, water-colours in the drawing-room, engravings on the staircase, and photographs in the bedrooms. In larger houses the subject may also affect the distribution, game, fruit, and other still-life pieces being hung in the dining-room, where also important landscapes and figures are not out of place; family portraits in the hall;

light landscapes, flower-pieces, and bright-costume subjects in the drawing-room; historical subjects and portraits of favourite heroes and worthies in the library; sporting and similar subjects in the billiard-room; topographical views on the staircases and landings, and miscellaneous prints, harmoniously grouped, in the bedrooms.

Large pictures should, of course, be generally kept for large apartments. It may be noted that dark subjects and large figures have a tendency to lessen the apparent size of the room in which they are hung, while open landscapes and perspective interiors have the opposite effect.

Picture-hanging.—Several important points arise in connection with picture-hanging. Very large pictures, or those intended to retain their positions permanently, are best fixed with "looking-glass plates" in the same manner as mirrors, but smaller ones have rings attached to their backs, and are hung with cord or wire from nails, rods, or rails. Cord is most usually employed, but is neither as strong nor as durable as picture-wire, one of the best varieties of which is shown in figs. 129 and 130. It is usually best to use two vertical lines for hanging pictures rather than one line in the form of a triangle, especially where a large number have to be placed.

Fig. 129. — Two-strand Picture-wire (breaking strain, 80 lbs.), with patent adjusting fastener for ring.

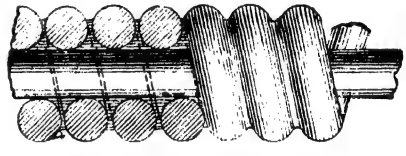


Fig. 130.—Enlarged Section of Picture-wire, which consists of a core of steel wire, covered with waterproofed cotton, bound round with Ormolu wire.

The cords or wires may be attached to the wall by means of nails, plaster-hooks, rods, or rails. Nails are most commonly employed, but are destructive to paper and plaster, and very inconvenient in view of that re-arrangement which a growing collection requires. Plaster-hooks (see fig. 131) do less damage to the walls, each being fixed with only three small pins. They will carry considerable weights, and when there are but few pictures, may be placed behind them out of sight. Best of all, however, are rods or rails, the former permanently fastened to the wall beneath the cornice, and the latter often in modern houses placed at the lower edge of a decorative frieze. Both carry sliding-hooks which admit of easy and accurate adjustment.

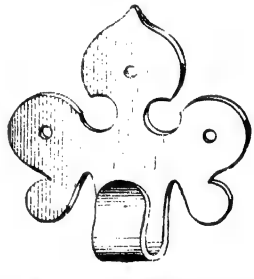


Fig. 131.—Brass Wall Hook, for picture hanging.

The positions to be occupied have next to be considered. If there are many pictures, it is best to begin with a line round the room at about four or five feet from the ground, to which the bases of the lower row of frames

may be adjusted. In this line should be placed architectural subjects having strongly-marked perspective, also landscapes with low horizons, interiors, and all works of fine finish that demand close inspection. Above the "line", as it is called, may be placed large figure-subjects, landscapes having high horizons or being of the nature of bird's-eye views, and work generally of broad execution that does not require nearness of view. This method will also, to a certain extent, tend to keep apart work of fine finish and that of bold execution, so that neither will damage the effect of the other.

All pictures must be carefully hung exactly upright. Nothing is more unsightly than the tilting forward sometimes seen. It is only occasionally necessary to prevent reflections in the upper row of pictures in large top-lighted galleries.

The lighting of the pictures in ordinary dwelling-houses cannot, of course, be arranged with ideal perfection, but, generally speaking, dark or indistinct works should be placed in a good light and brilliant ones in the darker portion of the room. As far as possible, the incidence of light on the picture should coincide with the lighting of the subject. For example, a portrait should not have the shadow side of the face turned towards the light. Most pictures also look best in a similar light (as regards direction) to that in which they were painted, as a little practical experiment will easily show. Positions that receive direct daylight should generally be avoided, or fugitive pigments may be quickly affected or altered.

Care of Pictures.—The last remark leads naturally to the consideration of the best means of preserving pictures. Their chief enemies are dirt, dust, damp, smoke, gas-fumes, and too strong light. Directions have been already given in respect of some of these, but a few other hints may prove useful. Frames should be frequently dusted with a soft brush, and, when necessary, cleaned. If gilded, they should be lightly washed with pure spirits of wine applied with a tuft of cotton-wool and left to dry. When dirt has to be removed from the actual surface of an oil-painting, it may be sponged off with water to which a little ox-gall has been added, and afterwards with pure water, the moisture being carefully removed with a soft silk handkerchief. In no case, however, should water be freely applied to the surface of a cracked painting, or portions of it may scale off. Water-colour drawings and engravings soiled with dust and dirt may be cleaned by the light and careful application of bread-crumbs, not stale enough to produce scratches and not new enough to be sticky and smeary. Any more complete treatment or restoration required by a valuable picture than could be effected by the methods above indicated should only be undertaken by a professional expert in such matters; if attempted by another, it may easily result in irremediable damage.

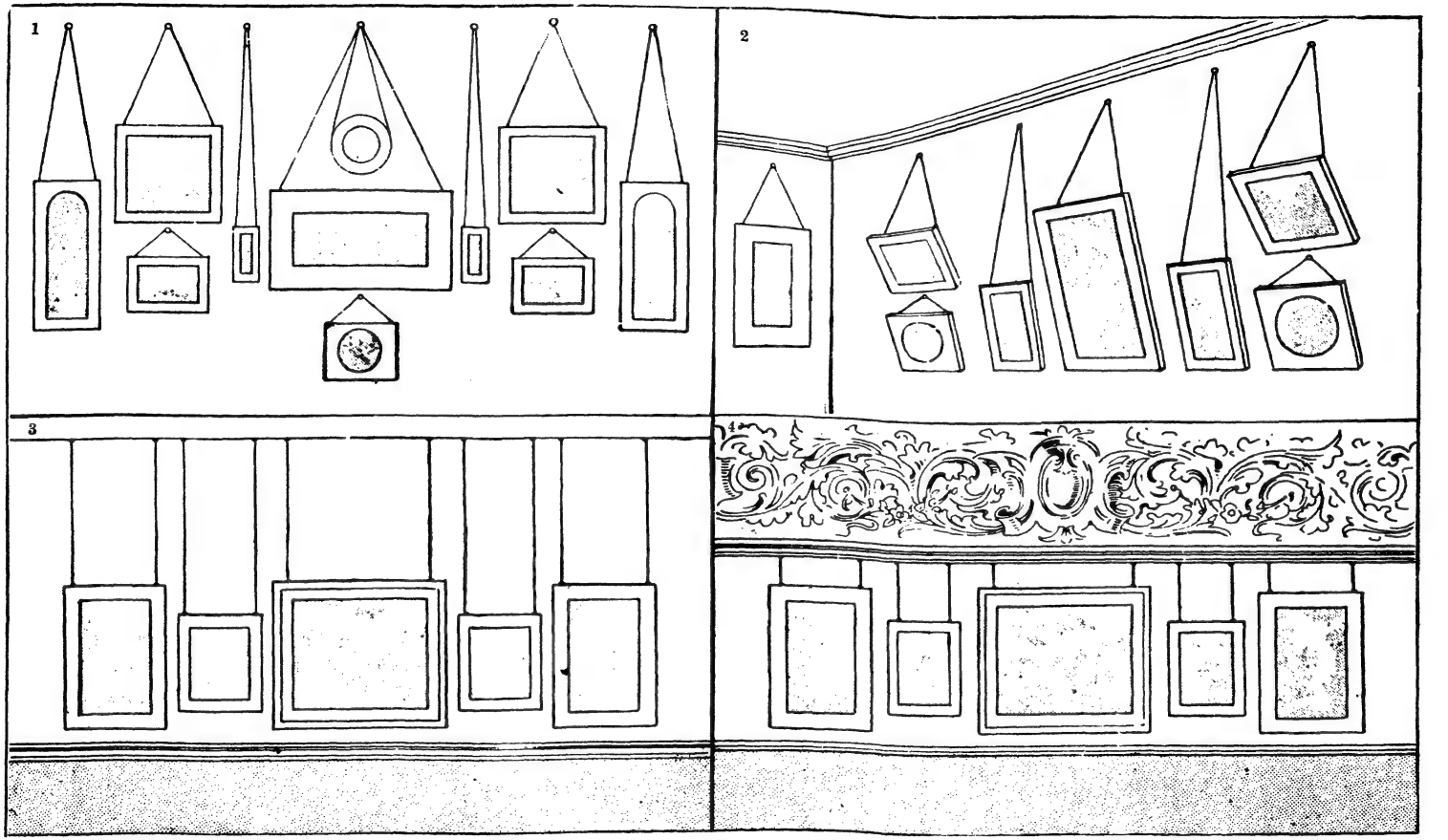


Fig. 132.—Good and Bad Methods of Picture-hanging. 1, The "Triangular" method; 2, the "Tilted" method (both to be avoided); 3, Pictures hung by perpendicular cords; 4, Pictures hung from frieze moulding.

BRIC-À-BRAC.

Under the head of bric-à-brac are generally included all ornamental pottery and porcelain, fancy glass for use and beauty, the many trifles imported of late years from the East, and those made in imitation of them. In a broad sense, the term stands for anything precious and breakable.

China.—The taste for fine china began in France under the "Grand Monarque", and crossed over to England in the days of the Stuarts. Queen Henrietta Maria showed some liking for it, and her son Charles II. still more, which was encouraged by the French proclivities of his youngest sister, the Duchesse d'Orléans, and of his Portuguese wife, Catherine of Braganza. Under Queen Anne, society affected more fondness for china and porcelain than was justified by its knowledge of them, but the Hanoverian sovereigns were the first to foster their production in England. Pottery is coarse, strong, and fit for everyday wear and tear, and the knowledge of how to make it seems to date back to a very remote period, if we may judge by relics that have survived to us, and by allusions in old records. Porcelain or china is fine and translucent, and certainly came originally from China, where the conservative Celestials jealously guarded the secret of making it. The word porcelain is probably from the Portuguese *porcelana*, meaning "little pig", for Portuguese traders with the East used the small shells called cowries as currency, and as there is a certain resemblance between the shape of a cowrie and a small fat pig, and the first specimens of china brought over had a shell-like finish, the word porcelain was applied to them and gradually took root in the vocabulary of nations. Towards the end of the sixteenth century "a porringer of white porcelyn and a cup of green porcelyn" were presented as New-year's gifts to Queen Elizabeth, so that they must have been accounted both rare and valuable; and remembering how many thousands of miles they must have travelled on camel-back across the deserts, as mariners had not then learned to double the Cape of Good Hope, one may wonder that they ever reached this country whole and unbroken.

There is very little doubt that the true secret of porcelain-making was obtained by Père d'Entrecolles, the Superior of the French Jesuits in China, from the converts in the province of Feouliang, and sent home by him with full instructions and specimens to Père Orry in Paris in 1712: and this valuable information resulted in the setting up of the famous manufactory at Sèvres.

Chelsea.—The earliest establishment for making china in England must have been at Chelsea, where a glass factory had existed for centuries. Pounded glass was much used in the first china-producing experiments, and there was plenty of it at hand. In 1684 a certain John Dwight claimed to have discovered "the mystery of making transparent porcelain" at his manufactory at Fulham, and this seems to have been the real beginning of the Chelsea china works. George II., being a true German at heart,

followed the fashion of other German princes in encouraging the development of porcelain-making, and under his patronage Chelsea attained its fullest success and prosperity. The manager, a foreigner named Nicholas Sprimont, held the reins for about twenty years from 1750, and under him all the finest pieces were turned out. The only reliable marks (fig. 133)

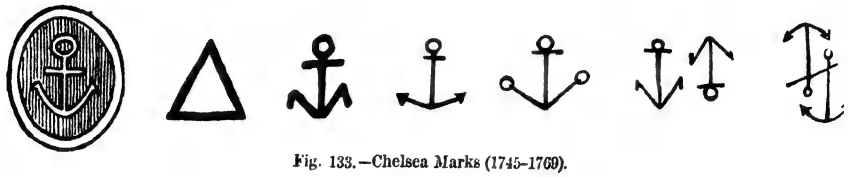


Fig. 133.—Chelsea Marks (1745–1769).

are triangles and anchors, but here and there the date may be met with. The triangle is supposed to have been originally the mark of the tripod on which the piece was baked or fired, but, as the early potters were not perhaps always able to write their names, they made their marks after the manner of the unlearned.

Bow.—Bow china is valuable and now rare. The factory seems to have been established in 1730, but not much is known about it until 1744. On account of its capacity for imitating oriental china it was called "New Canton", and these words always mark the article bearing them as a very

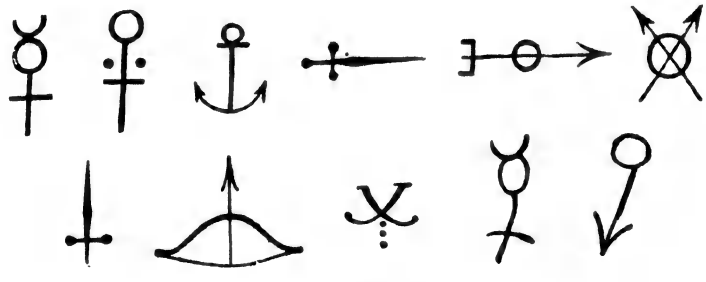


Fig. 134.—Bow Marks (1730–1775).

early specimen. The principal marks (fig. 134) are anchors and arrows, and now and then a bow and arrow. The factory was broken up and the movables sent to the works at Derby in 1775.

Derby.—The Derby porcelain factory dates from 1751, and its founders were William Duesbery, an enameller, John Heath, who most likely provided the sinews of war, and Andrew Planché, a man of French parentage who had lived and worked in Saxony and knew all about the ingredients and mixing. In 1770 Duesbury bought the Chelsea factory and must have carried it on for about fourteen years before removing the models and workmen to Derby. The London business house was in Bedford Street, Covent Garden, then the centre of all that was novel and artistic. A distinctive feature of Derby china is the rich blue border, frequently gilded; the paste or body is white and often painted with flowers and landscapes. It is usually marked with a crown, whence the expression "Crown Derby",

and also with "D" or "Derby" in writing or print (fig. 135). In the early part of this century the china began to deteriorate in quality and finish, and the date of its revival is about 1877; since then it has been produced with the fine old characteristics at popular prices.

Plymouth.—The Plymouth factory is remarkable as having been the first started in England where native materials alone were used, a white

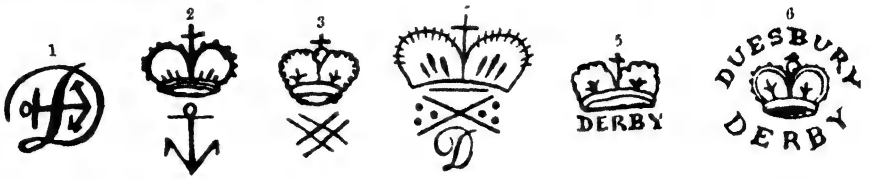


Fig. 135.—Derby Marks. No. 1, Chelsea-Derby (1769–1780); Nos. 3–6, Crown Derby (1780–1815).

clay and "growan" stone, or vitreous granite, having been found on the Camelford Estates in Cornwall. The china made there was ornamented chiefly with groups of shells, limpets, and cockles, and with birds and flowers on cups and saucers. A milky-white and full cobalt-blue are the distinctive colourings. The manufacture was afterwards transferred to Bristol, where the favourite ornamentation consisted of wreaths, very often in laurel-green. The commonest mark is a plain blue cross. The patent was sold late in the last century to a Staffordshire firm.

Liverpool.—Liverpool china is rare and has never been plentiful. It was made for about a century or less, and is chiefly remarkable as affording the first instance of transfer printing on pottery, invented by a certain John Saddler who entered into partnership with Guy Green. Anyone who meets with an old bit of pottery marked "Saddler & Green" may be sure that it has a certain value.

Worcester.—The Worcester Porcelain Company was started in 1751 under Dr Wall, a distinguished physician and chemist, and a "W" figures

Fig. 136.—Worcester Marks, used previous to 1780.

in many of its works. About 1787 George III. and Queen Charlotte took a fancy to it, thereby setting the fashion; consequently the word "Royal" was prefixed to the name. The business was long carried on by Flight and Barr, and anything marked with those names is indisputably Worcester. Very brilliant blue with a greenish tinge, and what is called salmon scale in blue and long-tailed peacocks in medallions, distinguishes early Worcester. The modern kind is different, much like Copeland ware, and some extremely fine specimens were given to Queen Victoria in 1887 as Jubilee presents by the women of Worcester.

Wedgwood.—Josiah Wedgwood, the founder of the celebrated Etruria works, also came into notice under George III. His first great discovery was the famous cream-coloured or Queen's ware, one of the earliest examples being a breakfast-set and caudle-cup which he presented to Queen Charlotte in 1762. She was so pleased with it that she appointed the maker Queen's potter, ordered a dinner-service, and of course started the vogue. His black, and afterwards his jasper, ware are justly celebrated; the latter was used for making the raised white figures on cream, lavender, blue, and black grounds, always associated with the name of Wedgwood. Many old

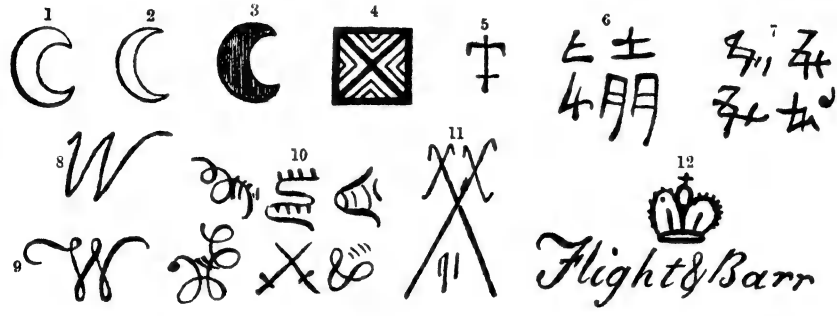


Fig. 137.—Worcester Marks. Nos. 1–11, Marks used during "Doctor Wall" period, 1751–1783 (Dr. Wall died in 1776). Nos. 1 and 2 (open crescent) are the most usual on *printed* wares; No. 3 (filled-in crescent) is found only on *printed* wares. The business was purchased by Flight in 1783; Barr joined in 1793.

Wedgwood plaques and medallions have an artistic value quite apart from their ceramic excellence, because Flaxman the sculptor made models for them. Bentley was for some years in partnership with Wedgewood, and the marks on the ware were simply one or both names without any addition. An initial or the affix "& Co." is a sure sign that the piece so marked is not genuine.

Doulton.—The Lambeth Pottery was founded by Mr. John Doulton in 1818, at Vauxhall, and first became popular at the 1851 Exhibition, though its merit had been previously recognized. It is divided into Doulton ware, on which a design is incised and coloured, dated, and fired once; Lambeth Faience, painted with flowers or original landscapes, and fired twice or more; and Impasta, in which the design is relieved in coloured clays and raised above the surface. Very seldom are two articles made alike, and that in these days of mechanical repetition is distinctly refreshing.

Other English China.—Spode, Copeland, and Minton are all modern artistic potters, and will go down to future generations as past-masters in their own special line of ceramics.

Dresden.—Dresden, in Saxony, is famous for china made at Meissen ever since 1709, when the Elector Augustus, sometimes called the "king of china-maniacs", gave it his powerful support. Very early specimens are dark-red, but a very fine white porcelain succeeded this. Bottcher, Horoldt, and Kändler were successively directors; but in the middle of the century Saxony became one of the battle-grounds of Europe, and the manufacture of Dresden china ceased. However, about 1778 it was revived at the king's

expense, and became distinguished for figures and landscapes. The well-known *bleu-de-roi* background is distinctive of the Marcolini period, just a hundred years. The modern Dresden is often good and cheap, and the marks (fig. 138) are very closely copied. They are chiefly crossed swords;

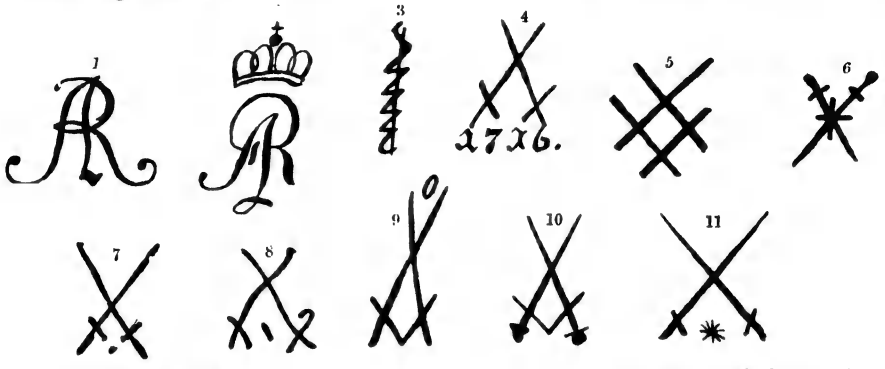


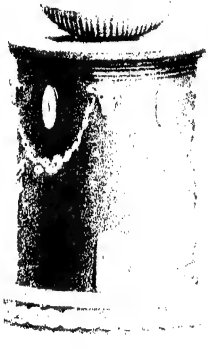
Fig. 138. Dresden Marks. Nos. 1 and 2, Meissen Ware, 1709–1726 (Augustus Rex: for the king's use); Nos. 3–6, 1715–1720; Nos. 7 and 8, King's Period, 1770; Nos. 9–11, about 1796. One or more stars denote the Marcolini period.

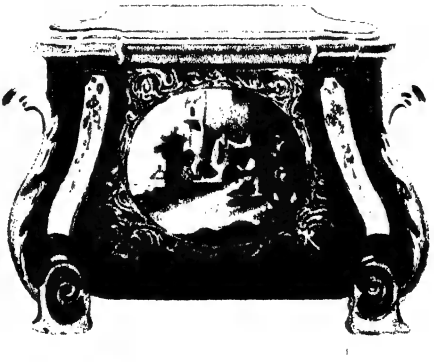
if there are any stars between or above them, the Marcolini period is denoted.

Sèvres.—A volume might be written about Sèvres china, and the mark alone would fill many pages of it. The company was formed in 1745 under Adams, a sculptor, and transferred to Eloy Richard about eight years later. Louis XV. took the greatest interest in it, and paid one-third of the cost, allowing it to be called the *Manufacture Royale de Porcelaine de France.* Two L's reversed formed the regular mark, and a letter of the alphabet was added to indicate the date, beginning with A for the first year. This continued till 1777, which is marked by a Z, and then began a double-letter period with AA, which went on till 1795, when RR was reached and that style of marking ceased. The special colourings were the old *bleu-de-roi,* the turquoise that followed it, the Du Barri or Pompadour pink, the *violet pensée, jaune claire, vert-pomme,* and *vert-pré.* This was the period of the *pâte-tendre,* which fell into disuse owing to the desire to copy the hard paste of Dresden. The secret was purchased in 1761, but even then the paste could hardly have been made in France but for the fact that a poor surgeon's wife near Limoges, looking about for something that would save the expense of soap, discovered a white greasy earth that proved to be true china-clay or kaolin.

Oriental.—The Oriental china now imported so largely seldom has any mark except that of the dealer. It is very ornamental, and serves decorative purposes just as well as if it were much more expensive. A great deal is manufactured simply for the English, or rather European, market; but it may generally be taken that anything marked with a crescent comes from a Mohammedan country, and that red Chinese characters within a square really denote a Chinese origin.

Persian.—Persian or "Gombroon" ware, so called from the name of the





port on the Persian Gulf from which it is shipped, may generally be known by its floral decoration, hyacinths and carnations being the favourite flowers, though the cypress is often introduced. The colours look very like enamels. Flat surfaces, such as tiles, are sometimes adorned with words and phrases from the Koran.

Arrangement for Ornamentation.—Plaques of Limoges enamel and of Palissy ware—the latter chiefly decorated with water insects, reptiles, and aquatic weeds—were very costly, and intended more as frameless pictures than for any other purposes. They have been largely imitated in modern Faience.

Wedgwood plaques were not only hung up, but, as the side-table of former days was then giving way to the sideboard of the Sheraton period, they were not infrequently ranged on it instead of silver. At the present time the possessors of a few dessert or dinner dishes of old Dresden, Wedgwood, or Spode, hang them on the walls, where all their beauties are displayed. Proper wires for this purpose are sold at prices ranging from about 6*d.* to 1*s.* according to size. Plates or plaques, all of one size, though of diverse colours and designs, look well when put up as a frieze, but in this case the frieze rail should be made strong and with a ledge, which keeps them from slipping, and helps to support their weight.

A group of five plates looks bald, but one of seven looks full and handsome if hung on a suitable vacant wall space, one in the middle, and the other six round it; the best arrangement for a set of three is triangular—two on the same horizontal line, and the third above, midway between them. Plates with a good deal of fine detail should never be hung too high up, but should be on a level with the eye, so that their beauties may be seen and enjoyed.

Etagères, or sets of small shelves with raised edges, are only suitable for little bits of china, such as cups and saucers and fancy jars. They should always be placed in positions where the shoulders and head of a tall person are not liable to come into contact with them.

Tear bottles, in bright blue or yellow, with big, short, globular bodies and long necks, are capital for placing on brackets in dark corners, as they introduce an element of brightness.

Ancient punch-bowls, and the great jars in which our grandmothers used to keep pot-pourri, look well on a sideboard or cabinet or on the top of a high bookcase or cupboard, but diminutive ornaments below make them look top-heavy.

Really precious china should be arranged on the shelves of cabinets with locked glass doors, of which the owner should keep the key. Servants do not recognize the value of such things, and the operations of dusting and washing, which must be gone through sometimes, should always be conducted by one of the family.

Glass.—About glass there is very little to say. The lovely iridescent Salviati glass, which derives its colours from the fusion of metals, is extremely ornamental both from its own intrinsic beauty and from the

elegance of the forms in which it is made. Useful things are made of it, but it is more suitable for looking at than for handling. Bohemian and Hungarian glass are of very similar character.

DECORATING WOODWORK.

There is always a good deal of unadorned woodwork about a house, both in the building itself and in the articles of furniture. This may easily be so ornamented as to appear more pleasing to the eye and add to the general effect. The following are some of the most useful and effective kinds of ornamentation.

Varnishing.—The principal kinds of varnish are oak, copal, paper, and carriage. Oak is the best kind to use for general purposes. The surface to be varnished must first of all be made quite smooth and clean, and all grease carefully removed by rubbing with glass-paper stretched over a thick piece of cork about four inches square. All soft woods, such as deal, pine, sycamore, and chestnut, must be sized before the varnish is applied, in order to fill up the pores and prevent the fluid from sinking in. Although the harder kinds of woods, such as oak, walnut, and mahogany, do not as a rule absolutely require sizing, it certainly improves them, as it makes the surface more glossy.

The size, which is an inferior kind of glue, is mixed with boiling water in the proportion of one part of size to about eight parts of water. An ordinary glue-pot may be used with advantage for this purpose. The water is stirred until all the size is dissolved; it is then quickly applied with an ordinary paint-brush, the article being afterwards set on one side for some hours in a place free from dust. The surface is again rubbed over with the finest glass-paper, and the varnish is laid on evenly and thinly with a brush with fine bristles. To prevent them from dropping out, it is best to bind them up tightly with string near the part where they are fastened into the handle. The brush must be drawn up and down the grain and not across it. In the case of soft woods, when the varnish is quite dry and hard any rough parts are smoothed with fine sand-paper, and a second coat is applied; one is sufficient for hard woods if the size has been properly laid on. At the same time the more often the process of glass-papering and varnishing is repeated, the more satisfactory the work is likely to be. The varnish must be kept in a well-corked bottle, otherwise it will become thick and useless. When the brush is finished with, it should be squeezed and then well washed in turpentine.

Staining.—The principal kinds of "stains" are light-oak, dark-oak, mahogany, walnut, rose-wood, and ebony. The surface having been made quite smooth, a coat of size should be applied if the wood is soft. Particular care must be taken not to let any lumps of undissolved size get on the wood, also to keep it quite free from grease. The stains are sold ready

mixed, and are best applied with a clean flat paint-brush. They must be laid on quickly and evenly, and each part of the work should be finished before the next is begun. The number of coats to be applied depends upon the depth of colour which it is desired to obtain; it is therefore advisable to experiment first on a piece of waste wood to see how many coats are necessary. If a very pale tint is required, water can be mixed with the staining fluid to lighten it. When the work is finished, a coat of varnish should be applied, as this will bring out the colour better. To ebonize a surface it is best to use ebonizing liquid, which is sold in bottles. Two coats are usually required, and when these are dry a coat of varnish should be added.

French Polishing.—French polish has many advantages over varnish: it looks more glossy and brings out the grain of the wood, but it is more difficult to apply. It cannot be used on deal, pine, and other soft woods, as it sinks into the pores, but oak, mahogany, walnut, and rosewood take it very well. The surface is first made quite smooth with coarse glass-paper, and afterwards with the finest glass-paper, until there is not a mark or a scratch left upon it. To apply the polish, a tuft of cotton-wool is saturated with it and wrapped up in a piece of linen rag about eight inches square so as to form a rubber. This is then well rubbed all over the wood, more polish being added to the wool as soon as it gets dry. When the whole is covered with polish, it is well rubbed all over with the rubber for some minutes, and afterwards with the finest glass-paper. The latter should have been previously used to take off its sharp edge. Another coat is then applied, but this time a few drops of sweet-oil are put on the outside of the rubber where it comes in contact with the wood. The rubbing should be done in circles as in cleaning a window, and considerable pressure must be applied. The wood will soon begin to shine, but the rubbing must be continued until it appears like a looking-glass when looked at obliquely. Care must be taken not to apply too much polish, otherwise the wood will get sticky and have a yellowish colour. If this happens, it will be necessary to use the glass-paper again and then to apply a fresh coat.

Darkening Wood with Ammonia.—Many woods, and especially oak, may be darkened and improved in colour by washing over with dilute ammonia. Some kinds of carved oak are much too light in colour when fresh from the workshop, and require darkening to bring out the pattern. The ammonia is applied with a brush or feather, and will give the work a well-seasoned appearance. More than one application is necessary to get a rich depth of colour. It is best to use very dilute ammonia, repeating the process until the requisite shade is obtained.

Gilding.—The cheapest way of gilding is to use gold-paint. It is sold as a liquid, and also as a powder which must be mixed with a liquid medium. Gold-paint answers very well for flat surfaces, but applying it to ornamental work is rather a troublesome matter. The paint is well stirred up and laid on quickly and evenly with a camel-hair brush. Unless care

be taken not to lay it on too thickly, much more paint will be used than is necessary. When wood-work has to be picked out in gold, this had better be done first, as to paint fine work with it is difficult. The other colours will then cover the parts which may happen to have been smeared. A coat of varnish when the paint is quite dry will help to preserve it.

Bronze-powder is applied in the same manner. Gold-leaf and Dutch gold are obtained in books containing about twenty-four leaves, each four inches square. The Dutch metal is much cheaper, as it is only an alloy of copper, but it soon gets tarnished, especially in houses where gas is burnt. As both kinds are extremely light and fragile, all draught must be excluded while one is working with them. The surface to be gilded is coated with gold-size, and when this is nearly dry the leaf is laid on. It must not be touched with the fingers, or with anything that is at all greasy or damp, but is best removed from the book with a sheet of paper or with a knife. It is then gently blown to make it lie straight, and is cut into pieces of the required size. They are applied by means of a camel-hair brush, which has first been breathed on to make it damp and so cause them to adhere to it. Each piece of leaf, after having been slightly shaken to make it flat, is laid in position, care being taken that it does not wrinkle. When all the surface is covered, the leaf is pressed down with a "bob", and rubbed over with a ball of soft linen rag to smooth it out. Any cracks or holes must be covered with small pieces, which are cut off and applied in the same manner.

Designs on Woodwork.—A very easy way of improving the appearance of all kinds of woodwork is to cut designs upon it. Almost any pattern, floral or otherwise, and even fretwork patterns and those used for poker-work, will do. The wood being made quite smooth, a piece of blue tracing-cloth is laid on it, and the pattern is fastened into it in the right position with drawing-pins. A sharp pencil is run along every line of the pattern, and, on removing the latter, the design will be found marked out on the wood. If the pattern is to be copied from a book, it must be drawn on the wood with a pencil. The design is cut to the same depth throughout with a small, half-round or v-shaped gouge, of the shape shown in fig. 139, which may be obtained at the shop of any tool merchant. Care must be taken not to run off the line, and unless the tool is very sharp the work will not look well. To keep it well under control, the handle should be held in one hand while the fingers of the other press it on the wood near the edge. When the cutting is finished, the lines are filled in with gold or ordinary paint, or are left plain.

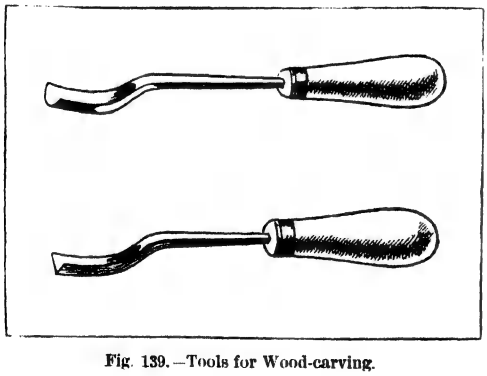


Fig. 139.—Tools for Wood-carving.

Inlaying.—Inlaying requires some skill to make it look effective, but is a good way of ornamenting woodwork, which need only be smooth enough to take glue. The design used may be floral or geometrical; any other requires a good deal of skill to execute. Fig. 140 represents one of the simplest geometrical designs. The pattern is first of all drawn out on the wood, and the pieces are cut to fit it. In the case of geometrical patterns the pieces can be cut square, rectangular, or otherwise with the aid of the shooting-board (fig. 141), but when other patterns are used they must be cut out with a fret-saw, and afterwards trimmed with a spoke-shave (see "Family Tool Chest", vol. v.). The wood used may be from $\frac{1}{4}$ to $\frac{1}{2}$ inch in thickness. When all the pieces are cut out, the surface which is to be covered is washed over with glue, after which the pieces are quickly laid on in their proper places. It is best to glue the edges of each piece, as any spaces which arise from misfits are thus filled up. Weights are laid on the top, and the whole is set on one side for twenty-four hours to dry. The superfluous glue is then removed, and the surface is carefully planed until quite level, and afterwards varnished or polished. Very effective designs can be executed in white and black woods in this manner. When the work is well done, they look extremely handsome.

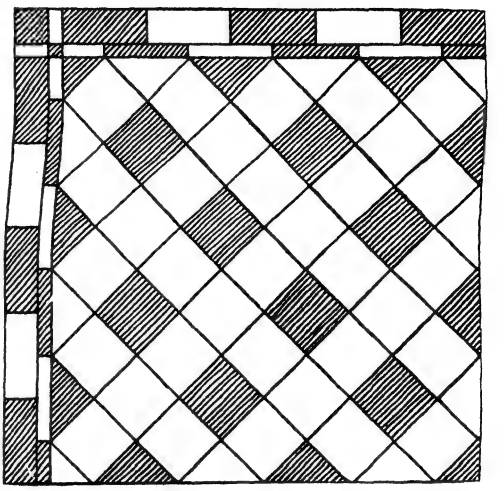


Fig. 140.—Simple Pattern for Inlaying.

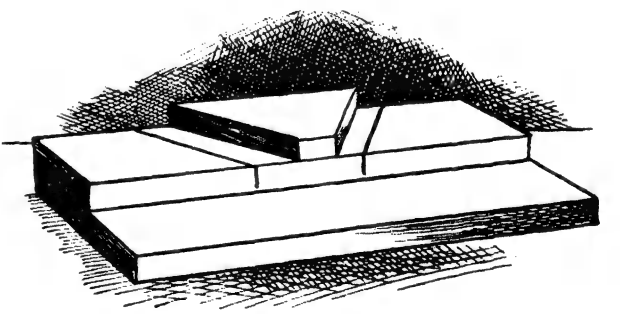


Fig. 141.—Shooting-board.

Artistic Painting on Wood.—Painting is another effective way of ornamenting the panels of doors and cupboards, the tops of drawing-room tables, brackets, bellows, and other woodwork articles. Suitable designs for panels can be obtained at most of the shops where artists' materials are sold. This method of decoration occupies a good deal of time, and is especially suitable for ladies. It is perhaps best to paint the design on canvas or satin, and fasten the latter with brass nails or tacks into the panel.

DECORATIVE SUGGESTIONS FOR AMATEURS.

There are not a few persons who, while possessing a considerable amount of cultured taste, and an equivalent degree of skill in some particular art or craft, do not realize how their gifts may best be turned to good account. A great many people can "paint a little": that is to say, they have what is commonly known as an "eye" for colour and form, and some command of the pencil and brush. Nevertheless, they lack sufficient natural ability or training, or both, to attain any success in the highest branches of art, hence are prone to confine themselves to the mere adornment of more or less useless little personal trifles, bazaar articles, and the like, entirely overlooking the many ways in which they might add to the real beauty of their homes.

Painting.—The amateur artist, however, should not be too ambitious in his first attempts at decorative painting. Unless he is exceptionally gifted, in which case he will need no advice on the matter, he should leave figure subjects alone, and choose in preference simple formal designs treated decoratively, not pictorially, or, if he objects to this style, the conventional or realistic representation of flowers as his skill renders advisable. For instance, screens, if painted by the average amateur artist with scenes *à la Watteau*, are often almost ludicrously bad, whereas if the same painters had chosen a purely conventional but graceful design of an Italian or even Celtic type, the result might have been excellent. The best background for such designs is a dull gold paper, and the painting should be carried out in rich but rather subdued tones, reproducing, as far as possible, the colour-effect of an old Spanish leather screen. Flowers treated conventionally, and painted "flat" in one or two shades of a colour on a contrasting ground, make an effective decoration for door-panels, dados, and friezes, especially if the whole of the design is outlined with gold or black. Arabesque designs, or formal *motifs*, such as the Tudor rose (fig. 142), fleur-de-lis, or Staffordshire knot, painted in the same style, can be introduced in a frieze to divide mottoes, proverbs or quotations, suited to the special purpose of the room, and executed in bold and fanciful, but legible, lettering.

If the artist is clever at painting flowers according to their natural habit of growth, a screen for a delicately-furnished drawing-room might have the frame and lower half of its panels made of white enamelled wood painted with garlands of pink roses or convolvuli tied with blue ribbons, the trails winding round the frame and surrounding the clear glass filling the upper portion of the panels. An overmantel for the same room could be designed to match, with three oval mirrors set in white panelling, painted with festoons of flowers and love-knots. Little tables and cabinets, decorated in the Vernis Martin style, are well suited to rooms fitted up in a dainty French style, but this method of painting is not easy of execution, and unless it can be well done should not be attempted.

Stencilling need not be despised if the skill required to draw a good

pattern is lacking. A bold stencil design, touched up if necessary by the brush after the removal of the plate, can be used for a frieze with excellent

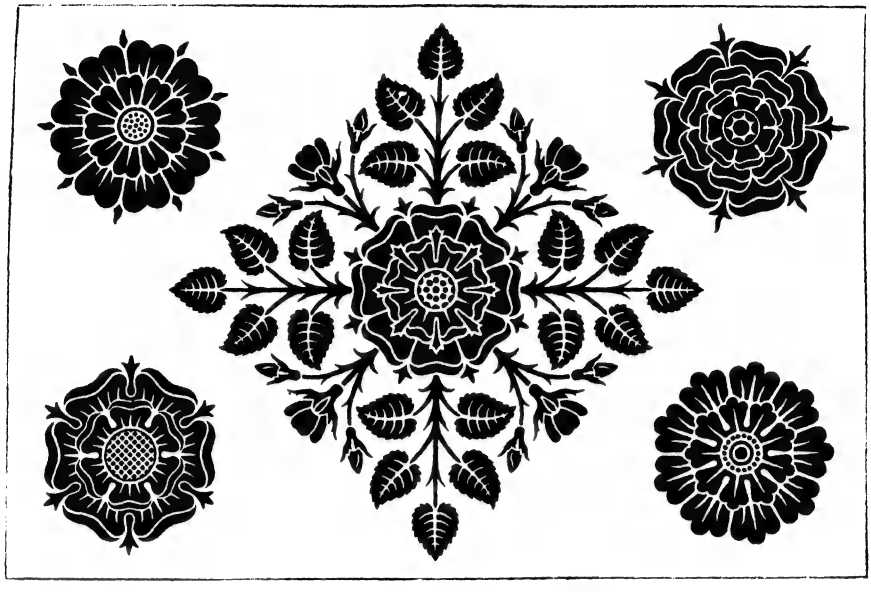


Fig. 142.—Studies of the Rose Conventionalized.*

Fig. 143.—Stencil Design (Peony Flowers and Leaves)—Japanese Style.*

results; and if a set of Japanese stencil plates (fig. 143) can be obtained, they will make a most effective and pleasing decoration for a small sitting-

* Reduced from Audsley's *Practical Decorator.*

room or smoking-room. When panels of doors, cabinets, overmantels, and the like are ornamented in this way, the whole or part of the design may be raised with gesso-paste after the stencilling has been done, and then coloured according to taste. Stencilling, too, may be applied to the ornamentation of textile fabrics, like art-linen, arras, and even sackcloth, and the pattern may be outlined with thick gold thread, or with rope-stitching in coarse flax. If the material is to be strained tightly, as in the case of a screen-covering or a dado, ordinary enamel may be used for the stencilling, but if the drapery is to hang in folds this would detract from its flexibility,

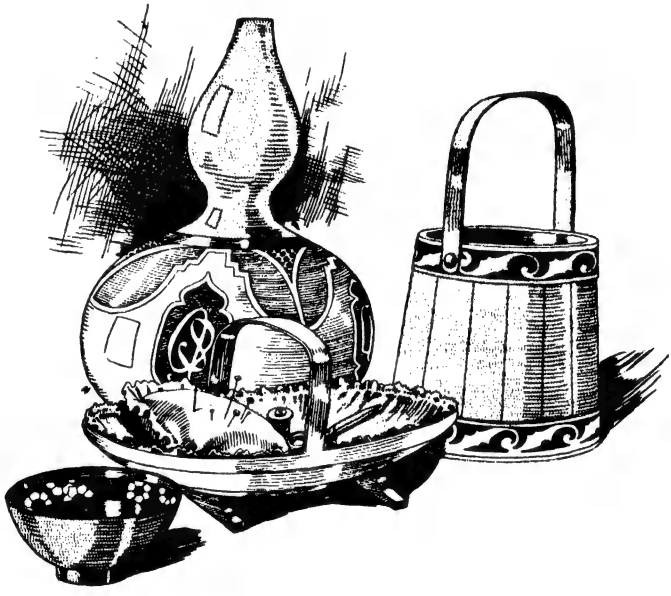


Fig. 144.—Suggestions for Decorative Treatment of Various Articles—Earthenware jug, wooden basket, &c.

and one of the stains or paints specially prepared for such work should be substituted for the enamel. Bell-pulls of webbing look well if treated in this way.

Water-colour sketches can be used in other ways than hanging them on the wall. They may be mounted in screens or overmantels, surrounded by velvet, brocade, or ornamented leather, or they may be sunk in the panelling at the back of a cosy corner.

Among smaller subjects for ornamental painting are lamp and candle shades of gauze, which should be decorated in transparent colours with flowers or small landscapes, a monogram in a wreath of small blossoms making a pretty design for a set of candle shades. All kinds of unglazed earthenware jars and pitchers, if of good shape, can be painted with bold designs of a Moorish type in one bright colour, outlined with gold or black; and wooden Sussex "trug" baskets and small flour-barrels may be made sufficiently ornamental to hold needlework in the drawing-room by means

of either conventional or floral designs on a coloured ground, a lining of soft silk or satin being afterwards added (fig. 144). Dessert and tea services of plain white china afford plenty of scope for a display of the painter's skill; so do tiles for all purposes, from tea-pot stands to fireplace sides and hearths, but as these must be "fired", success at the first attempt is scarcely

Fig. 145.

to be expected, and a few experiments should be made before an important piece of work is embarked upon. Oval tea-trays, decorated in the Vernis Martin style, are exceedingly pretty if the work is well done.

Poker-work.—Poker-work had at one time fallen into disrepute owing to the bad specimens which became general on its first introduction. Yet it is an effective form of decoration if discreetly used, either alone or in combination with staining. A plain wooden mantel-piece, for example, might be ornamented with a bold conventional design carried round the grate opening, while the overmantel could be made of panelling the width of the shelf, and 2 feet 6 inches to 3 feet high, with three narrow perpen-

dicular openings to be filled with embroidery or a handsome leather-paper (fig. 145). There should be a narrow shelf at the top for china, and the poker-work ornamentation should be carried all round the panelling, with, perhaps, the addition of a motto or quotation burnt in fanciful lettering along the top. The overmantel might be replaced by a long, low mirror in a wide, flat-pokered frame, the motto in this case being inscribed on the flat piece of wood above the grate-opening immediately under the mantel-piece. A third plan would be to leave the chimney-piece and overmantel frame undecorated, but to insert in the latter small panels pokered with landscapes. Sycamore, holly, lime, box, and pear are the best woods to choose for these small panels, as it is essential that the surface should be very smooth. The background of poker-painted articles can be stained green, walnut, mahogany, or oak-brown, and the design itself may be stained in several colours, or in a single one contrasting rather sharply with the ground. Either marquetry stains or water-colour can be used; the latter are best for small objects. Poker-work can be effectively applied to screen-frames, small benches and tables, stools, cabinet-panels, small china and medicine cupboards, and many other things. It may also be introduced in the actual decoration of a room, a bold burnt-in design making a good finish to a plain stained wood dado, for example. Poker-work on leather is often very handsome when combined with staining, but even alone it has a pleasing appearance. Seats for chairs and benches fastened down with copper-headed nails, or laced on with leather thongs, loose cushions for window-seats, and footstools, may be successfully decorated in this way, while panels of leather, pokered, stained, incised, or embossed, may be mounted as screens, or let into dados and overmantels. The best designs for such pieces of work are emblematic figures—such as the four Seasons—or groups of foliage or fruit conventionally treated.

Carving.—The ability to carve a little is decidedly valuable when home-decorating is undertaken. As in painting, however, it is best to begin in a small way by attempting only designs of a simple but not necessarily feeble and ineffective type. Wide flat frames for pictures or mirrors are easy to ornament, at first with unambitious formal patterns, later with garlands of flower and foliage, which may be painted white if to hang in a room furnished in a light and fanciful way. Fender-stools, long, low, and flat, with tops of embroidery, old brocade or decorated leather; square box-footstools, bellows, small tubs or half-barrels to serve as palm-pots—all these can be made ornamental without much labour. Shelves for china may be carved along their front edges, and supported by carved brackets; overdoors can be carved with appropriate quotations referring to greeting and welcome, and when some experience has been obtained, not only in the handling of the tools, but in the choice and adaptation of design, the decoration of furniture of all kinds may be attempted successfully. The general lines of ornamentation should follow the grain of the wood as far as possible, and care must be taken that whether the article to be carved is large or small, it is of sound construction. Neat joinery-work is as impor-

tant as elaborate ornamentation; the latter can never compensate for gaping joints, badly-cut mitres, crooked key-plates, and the general untidiness which unfortunately so often disfigures amateur work.

Carpentering.—What a clever home-carpenter cannot do is hard to say. He can make pieces of furniture to be decorated by one or other of the methods already described, cut shelves for china and books, fit window-seats, convert ugly and useless things into beautiful and serviceable ones, and—this is not the least of his virtues—he can restore and rejuvenate old furniture picked up at sales and in second-hand shops.

A tolerably skilful amateur carpenter can make, without much difficulty, a comfortable fireside settle for hall use. It should be just a wide bench about four feet long, with a high back carried down to the ground, sides of the same height, and legs either turned or square-tapered under the front corners of the seat. Such a settle can be ornamented with carving or poker-work, or merely stained and polished, and it should be supplied with a seat-mattress and a couple of loose cushions, covered either with leather or a strong tapestry of antique design. A piano packing-case can be converted into a similar kind of settle if the lid is removed and a seat fitted inside it. All sorts of packing-cases may be turned to account by a clever carpenter. Several ways of doing this are described under "Flats", vol. i. Small lidless boxes, measuring about 18 or 19 inches long, 8 to 12 inches wide, and 4 to 6 inches deep, can be converted into simple over-mantels. Two may be fixed side by side the long way up, with a narrow mirror in a flat reeded frame between them, and a long shelf placed across the top of the three. The boxes should be fitted up with little shelves and lined with leather-paper or velveteen, while the outside may be stained, enamelled, carved, or pokered. Or two similar cases can be set one on top of the other so as to form a T, and fixed above the mantel-shelf. The crossway box at the top should be divided into little pigeon-holes for ornaments by means of small fretwork partitions, and fretwork corner-pieces can also be fitted into the shelves of the upright box. Boxes and cases of all kinds can be effectively treated by covering them with brocade or tapestry, fastened with rows of closely-set brass or copper-headed nails arranged to form patterns. Wooden trunks with dome tops, such as servants used years ago, make quite imposing-looking chests if covered with old-fashioned-looking tapestry.

Metal-work.—Ribbon or bent-iron work, in spite of the popularity it has had of late years, is almost the least satisfactory of the various kinds of metal-work which are specially suitable for amateurs. The designs are too often feeble and inappropriate, and the way in which the metal is pinched and tortured into innumerable little scrolls and zigzags is apt to be irritating to an artistic eye. But if simple designs with flowing curves are chosen, many really ornamental as well as useful things can be made, among others, stands for flower-pots and lamps (fig. 147), *grilles* for doors, music-racks, candlesticks, and bell-pulls. *Repoussé* work, both in brass and copper, may be counted among the most decorative of crafts. Plaques for

Fig. 146.—Salver in Copper *Repoussé*.

general appearance of their rooms would be very much improved if, instead of crowding every table with more or less unsatisfactory likenesses of their friends, they were to utilize some landscapes, flower-studies, or views of well-known or picturesque buildings in the actual decoration of the apartment. A long panel, holding from five to a dozen cabinet-sized gray platinotypes in a broad frame stained dull-green, might be fixed about 12 or 14 inches above the mantel-shelf, the space between being filled with a plain, stretched piece of velvet in a lighter shade of the same green. If the platinotypes are sepia-coloured instead of gray, the frames should be dark-brown, and the velvet either brown, turquoise, or gold colour. A large photograph, sunk in the middle of a velvet panel, with smaller photographs inclosed in a narrow wooden moulding all round, would also fill up the space over the chimney-piece satisfactorily. Photographs might also be arranged above a dado, prac-

sideboards and overmantels (fig. 146), door-fittings of all kinds, card-trays, bowls, sun-dials, bellows—these are but a few of the articles that may be ornamented in this way. Hammered-copper fronts for window-boxes look extremely well, and pretty candle-shades can be made of very thin metal, partly pierced, partly *repoussé*.

Photography.—Amateur photographers seldom appear to realize the decorative possibilities of their art. But the

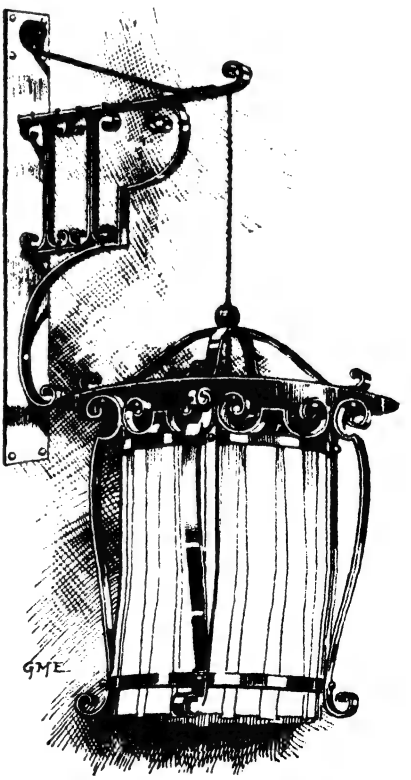


Fig. 147.—Bent-iron-work Electric Lamp Bracket. (Circular top of lamp and wall plate in copper.)

tically forming part of it, or at the back of a cosy corner, or in a screen.

Embroidery.—Much may be done to beautify a house by dexterous and judicious use of the "needle small and slender". Curtains and hangings of all kinds may be embroidered. For drawing-room use they may be of serge or of diagonal cloth, ornamented with a bold border worked in crewels, with powderings in a Japanese style of rising suns executed in gold or copper thread, or with appliqué of velvet outlined with gold. Curtains of ivory or pale primrose satin sheeting, embroidered with a Louis XVI. design of flowers and love-knots in delicate-coloured silks, are suitable for a drawing-room furnished in a dainty French style. To go with old English oak furniture, more appropriate hangings might be made of thick white linen, the embroidery design being of the heavy style, generally, although not altogether correctly, known as Elizabethan, and executed in fine crewels. Curtains of serge with bands of creamy house-flannel embroidered in thick wool, arranged across top and bottom, are inexpensive and effective; while for bedrooms, printed Bolton sheeting with its pattern worked up with stitchery, makes fresh-looking and pretty hangings. Curtains of cream twilled cotton sheeting, ornamented with appliqué of red Turkey twill, are bright and cheerful in a nursery, and wash well with a moderate amount of care. Art linen in the thicker makes, with borders and powderings in appliqué linen of a contrasting colour to the ground, or embroidered with flax thread or ingrain cotton, may also be suggested for bedroom draperies.

Panels of embroidery can be introduced in the decoration of a room in several ways. They can be, as has been already suggested, let into over-mantels and mounted as screens; they may replace the always more or less uninteresting front of an upright piano; or if pictures are scarce, they can be mounted in flat frames and used as substitutes. For upright panels, symbolical figures representing Faith, Hope, and Charity, Wisdom and Justice, the Seasons, or the Elements, are effective if worked on cream or string-coloured linen in outline only in two or at most three shades of sepia-brown, the background being closely darned. Very skilful embroideresses may venture on working the figures "solid" in natural colours, but the simpler method is a safer one for ordinary people to adopt. A pretty design for a piano front is composed of a lyre, some branches of laurel, and a music-scroll with a few bars of some celebrated melody, the whole surrounded by a simulated ribbon, and worked out with fine silks on a foundation of thick upholstery satin. Bell-ropes of satin ribbon embroidered with a design of knotted ribbon connecting little bunches of flowers are charming for a drawing-room or a boudoir. In other rooms, bell-pulls of webbing or of cocoa-nut binding, worked with a running design in chain-stitch with thick cotton, are inexpensive and pretty.

A really nicely embroidered coverlet adds much to the appearance of a bedroom. If time is no object a lovely spread can be made of white linen traced with an all-over design in outline stitch, the whole of the ground

being covered either with close-darning or with one or other of the many "filling" or "background" stitches which our foremothers have handed down to us. Linen coverlets, too, may be ornamented with appliqué, or the material can be cut into squares or strips and embroidered either in cross- or satin-stitch with ingrain cottons, these sections being joined with insertions of coarse Russian linen lace, and the whole coverlet lined with colour. If the wall-paper happens to be a floral one, it is a good idea to take it as a key-note for the embroideries in the room, but the pattern should not be slavishly copied, as a design intended to be upright seldom looks well seen

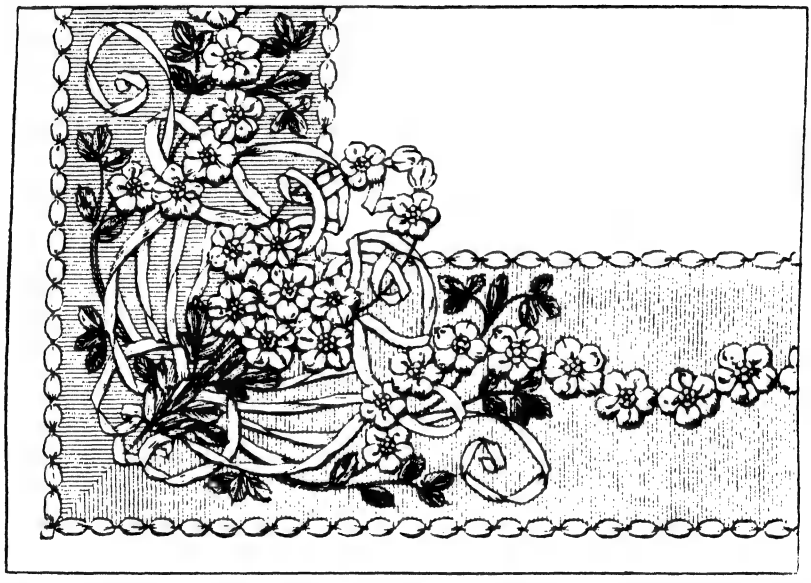
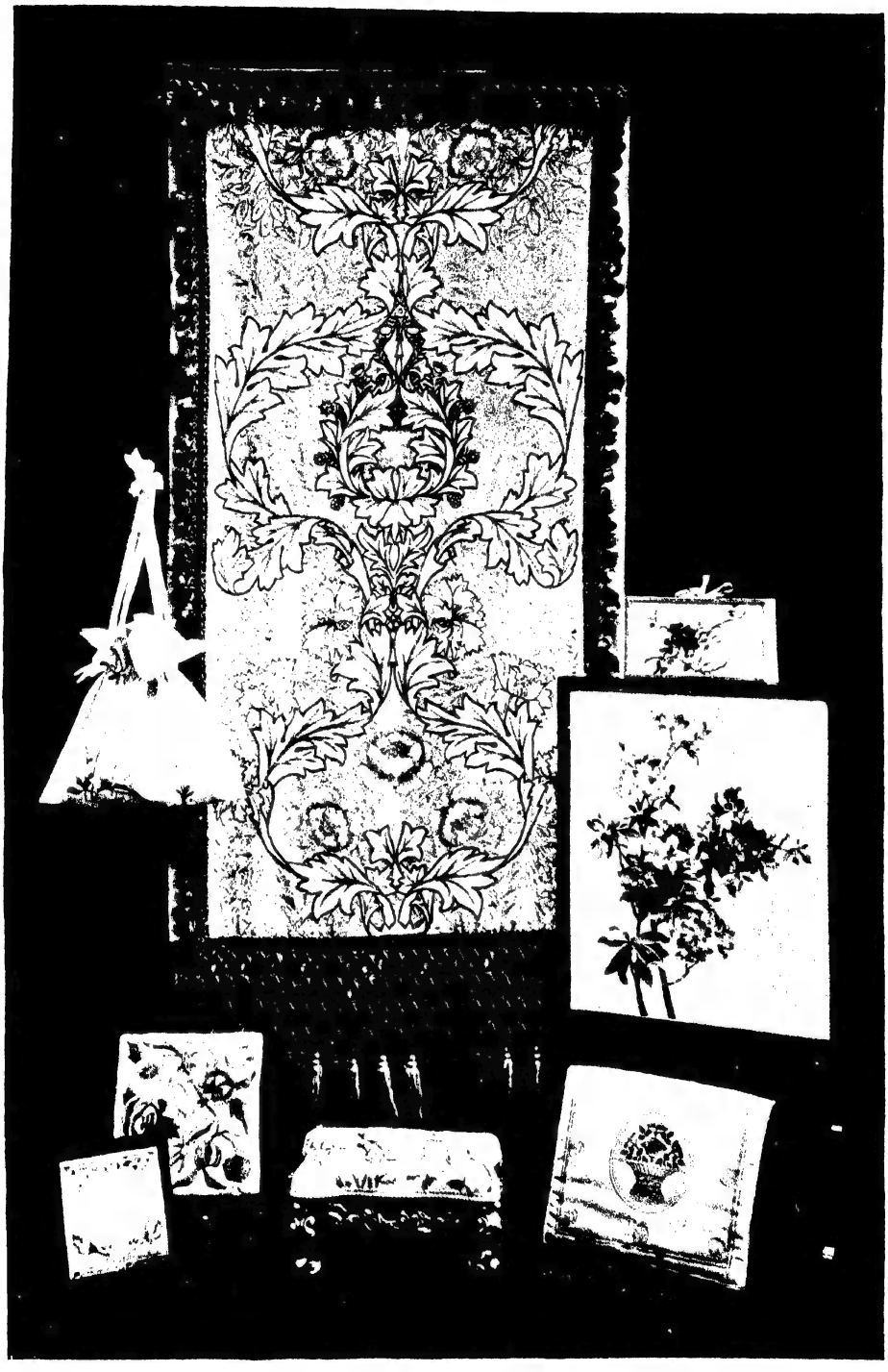


Fig. 148.—Decoration for a Bed-spread, in ribbon work on coarse net or on a ground of ribbed silk.

on the flat. Suppose, for example, the flowers represented in the paper were to be yellow daffodils, the bed-spread could be powdered all over with daffodils, the toilet-slips and towel-cover could have borders to correspond, and even the towels might be marked with a daffodil in the corner beneath the embroidered monogram. The bed-spread decoration shown in fig. 148 may be wholly in white satin ribbon; or white flowers, pale mauve ribbons, and pale apple-green leaves on a cream ground would give a delicate colour-scheme.

The best way of ornamenting towels intended for regular use is with bands of cross-stitch embroidery worked in ingrain cotton, red or blue. Towels can be bought ready traced for working in this way, but it is a far cheaper plan to tack strips of Berlin canvas across the ends of ordinary huckaback or damask towels, to work through this, and to pull the threads of the canvas out on the completion of the embroidery.

A pretty little fireplace-screen for use in summer can be made on the lines of a three-fold clothes-horse in miniature. It should have double rails at the top, between which are slipped loose strips of embroidered material,



EXAMPLES OF EMBROIDERY

At the Royal School of Art Needlework

each exactly the right size to fill the panel. An agreeable variety may be obtained by having two or three sets of these little slips. One might be of Chinese embroidery, another of silk worked with a floral design, and a third of brocade, enriched with gold thread and spangles.

Seats for Chippendale chairs, or loose cushions for Elizabethan ones; curtains for the backs of pianos or to hang in recesses behind corners; portières and mantel-draperies—these are only a few of the innumerable things which a clever and industrious needlewoman may make beautiful for the adornment of her home.

*** Fig. 146 is reproduced by courtesy of the Craft Classes, Acton and Chiswick Polytechnic, Bedford Park, London, W.

THE DECORATIVE ARRANGEMENT OF PLANTS IN THE HOUSE.

PLANTS IN POTS.

The comparatively modern fashion of utilizing growing plants largely in the adornment of rooms, halls, and corridors, is a very pleasing one, provided that it be followed with discretion. But it is certainly not discreetly followed if the solitary and not over-large window of a room is completely blocked with gaunt geraniums and straggling ferns on rickety stands, if the only substantial table is filled up by a disproportionately big palm, or if the unlucky plants are left untended from the day they come from the florist's to that on which their miserable, shrivelled remains are cast into the dust-bin.

Pot Plants for the House.—With a slightly-heated greenhouse to which the plants can be regularly returned for rest and "treatment", the choice of pot plants for room decoration is practically unlimited. But the list of those that will thrive for any appreciable time in the arid, gas-polluted atmosphere of a town house is not a long one. It is best to rely on such well-known and useful plants as the india-rubber plant; the aspidistra or parlour palm, both the green and the prettier, if less robust, striped kind; the hardier palms, especially the kentias; and ferns, combining them according to the season of the year with flowering plants in pots. With ferns may be included the selaginellas and club-mosses, although it is not advisable to have too many of these moisture-needing things in a living-room during the winter. Among other good foliage-plants are the dracænas, which will not, however, do well in a room unheated at night in frosty weather, and aralias; while for hanging baskets, choice can be made of stone-crops, house-leeks, and saxifrages, some of the oddest-looking of the cacti, and two or three varieties of campanulas, besides the small-leaved varieties of ivy, tradescantia, and musk. Maurandya is another excellent plant for the purpose. Dwarf evergreens, such as box, euonymus, and cypress, are cheaper than greenhouse plants, and not ineffective, and pots of the variegated Indian corn and grasses may be added to the list.

The Arrangement of Plants Indoors.—In houses of moderate rental the rooms are rarely sufficiently large for any attempt at elaborate groupings of growing plants to be successful, but occasionally one side of a bow-window or some other fairly well-lighted corner can be devoted to the display of a few good specimens. The best flower-stands for this purpose are shelves cut to fit the recess and stained oak colour, which shows less than any other the traces of mould and moisture inseparable from the culture of plants. It should have from two to four shelves, graduated in width, and it ought to be strongly, though not clumsily, made in the simplest and most unobtrusive design. A good effect is obtainable by nailing against the front edges a few strips of varnished virgin cork or a number of varnished pine cones irregularly arranged. On this stand are arranged palms and ferns, the foliage of those on one shelf concealing the pots of those above, the plants on the bottom shelf being dropped into outer pots of hammered copper or brass, or of artistic earthenware. Between the larger foliage-plants should be set pots of growing flowers, and tucked into every available corner should be smaller pots of trailing plants and feathery mosses, the whole forming a well-proportioned group, tapering upwards from the low-growing sedums and selaginellas near the ground to the palms, and, perhaps, tall white or orange lilies on the top ledge. Care must be taken not to make this arrangement too formal, and it is not suitable for a very small room.

Plants on the Landing.—A corner arrangement which has a particularly effective appearance in a hall or on a landing is carried out by fixing, between the angles of the walls, a tall mirror—say 6 to 7 feet high—in a wide, flat, wooden frame, filling in the space between it and the walls at the top with a triangular piece of wood, on which may stand a spreading fern. The bottom of the mirror might be raised to the height of the plinth, and a shelf might be fixed in front of it at that level, on which flowers in pots or vases might stand. Fig. 149 represents a more elaborate arrangement; a corner cupboard into the door of which an oval mirror is framed. Gesso ornaments are added in the corners and around the glass, and a broad flat moulding is cut on the edge of the board forming the top. At the foot a box with tile front could be used either for cut flowers, or preferably for growing plants in pots. Chinese roses, pink or crimson, ferns, and small palms would be suitable for such a position. A simpler corner arrangement consists of three or four triangular shelves, graduated in size, fixed one above the other to hold pot plants and shallow pans of Creeping-jenny, Mother-of-thousands, or some other pretty old-fashioned trailer. Rough, red pottery receptacles of picturesque shape, in which the plants can really grow, are not to be despised for use in situations such as these.

Plants for the Fireplace.—House-mistresses, careful of their grates, rarely approve of summer fireplace decorations that entail the use of many growing plants. The chimney must be blocked by closing the register tightly; even then the situation is not a particularly healthy one for plants, and they should be changed at frequent intervals. The grate, however, will

not suffer seriously from the proximity of the flowers if it is very slightly smeared with vaseline or paraffin. The hearth should be fitted with a tray of zinc or tin, and the fender, if a steel one, replaced by a wooden

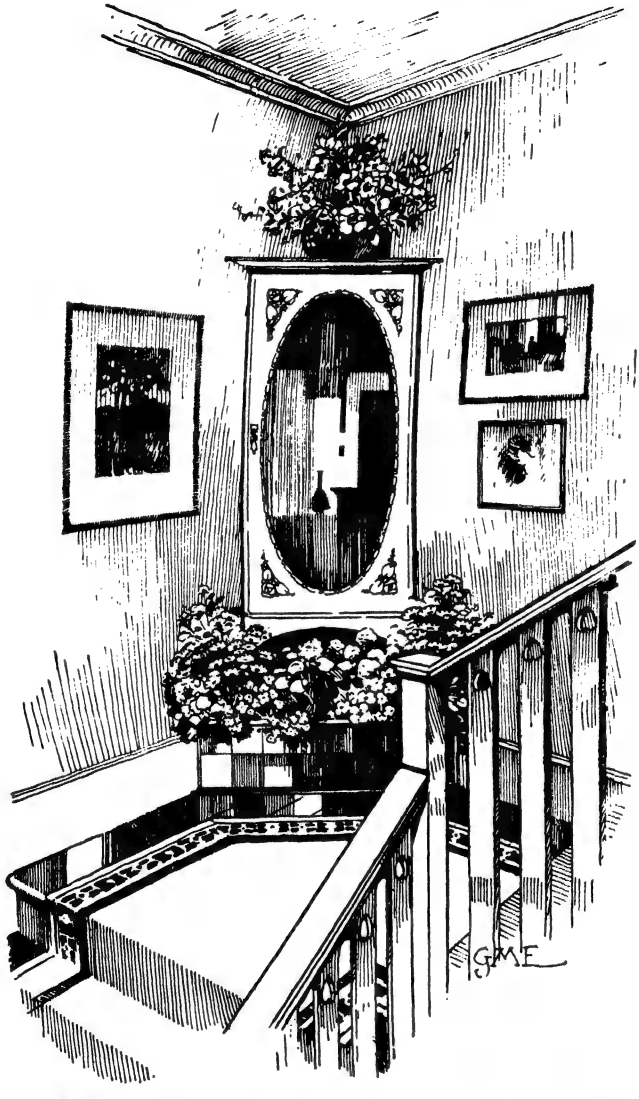


Fig. 149.—Corner Cupboard with Mirror and Flower-stand for Staircase.

kerb covered with lincrusta and painted some wholly unobtrusive tint—cream, brown, or dull-green, for instance; one of virgin-cork is admissible, although scarcely desirable here. A narrow tin trough, made in several sections for convenience of removal, can be constructed to fit inside the fender, this trough, which must, of course, be pierced for drainage, being used for small ferns and any other suitable plants. The tray itself must be

filled with pot plants, carefully, but not too formally graduated in size up to tall ferns, and foliage-plants at the back, all bare spots being filled with "thumb pots" of seedling ferns and masses of feathery green moss kept fresh by occasional slight watering. It is desirable to make a background for this arrangement by fitting the grate-opening with a panel of art-linen or fluted pongee silk (it would be unwise to use an expensive material) stretched on a light wooden framework. Japanese leather-paper or anaglypta could be used in place of a textile fabric if preferred.

Climbing Plants Indoors.—Ivy grown in pots or troughs is useful for room decoration. It can be trained to cover a square of wire-netting for a fireplace screen, or over an arch of wire fixed between two pots, a basket with a trailing plant being hung from the centre of the span. Or it may be encouraged to climb round a staircase or landing window, although this idea is perhaps more decorative than cleanly. Tall tropæolums, too, can be trained in this way, and if intelligently treated will be gay for months.

Receptacles for Pot Plants.—Gallows-brackets of hammered iron and copper standing out from the wall and supporting copper bowls of Venetian design; smaller receptacles of Moorish brass-work; china pots of all kinds, from Japanese ones at 6*d.* each to those of old Lowestoft ware—all can be pressed into service to hold growing plants. A very simple but picturesque receptacle is one of the common green-rush tool-baskets such as are often to be found in country towns. This, when an oval piece of wood or tin is put inside to make a firm base, can be filled with pots of hardy ferns and set on the hearth of an old-fashioned grate, or in a corner of the hall. The basket must on no account be trimmed with ribbons or wisps of art-muslin, and it should be a new one made of fresh green rushes.

Plants for Halls.—Suitable plants for very badly-lit halls and staircases are aralias, aspidistras (especially the variegated kind), the more ornamental kinds of euonymus, Australian myrtle, and the common laurustinus, to which may of course be added ferns of every kind, but especially the hart's-tongues in their several varieties.

Seedling ferns and club-mosses should be encouraged to grow round palms and large ferns. They will conceal the earth and pot, look pretty, and do no harm, if the young ferns are removed and potted up as soon as they attain any considerable size.

CUT FLOWERS.

Once on a time the floral decoration of a room was considered complete if half a dozen "specimen" glasses were dotted about on the table, or ranged in a stiff and formal row on the mantel-shelf, each ugly little vase holding a solitary camellia, a short-stalked full-blown rose, or a tightly-tied bunch of violets. Ideas on the subject have developed since those days, yet even now it is rare to see a group of flowers thoroughly well-arranged, perfect not only in colour-harmony but also in grace of outline.

The modern floral-decorator, be she amateur or professional, is apt to

over-estimate the value of colour when she is designing her arrangement. Hence she crowds her bowls and jars with closely-packed masses of blossoms and foliage until the result is a mere chaos of colour, and the individual beauty of each flower and spray of foliage, to say nothing of any suggestion of natural growth, is quite lost sight of. Concerning the value of form in flower arrangement a lesson may be learnt from the Japanese, for, although their peculiar style of decoration can rarely be successfully copied in exact detail by European hands, it exemplifies in perfection how graceful may be a simple group that consists merely of a spray or two of some flowering plant, a tree branch, or a mere handful of flowers.

Cut Flowers and their Background.—The background of the vase, bowl, jar, or basket is rarely sufficiently considered. It is not at all uncommon to see a great beau-pot of crimson peonies set against a brick-red wall-paper, a cluster of brilliant scarlet gladioli against a salmon-pink curtain, or a bowl of stiff magenta sweet-williams in a dainty blue-and-gold Louis XVI. drawing-room. Now if, instead of these discordant combinations, the brick-red paper were to be the background to a few tall white flowers placed in a group of foliage, ferns, and grasses in every shade of green and brown, and if the gladioli were mixed with brown leaves and set against a curtain of dusky-blue or bronze-green velvet, the result would be charming instead of hideous. Then, although the stiff and strong-coloured sweet-williams are desperately out of place in a delicate French type of room, they would be more than merely pleasing in an old-fashioned English one with wood-panelled walls and chintz hangings. Large masses of crude strong colour should never, indeed, be introduced in rooms decorated and furnished in a light and dainty style, although they may be used with good and striking effect in dark and gloomy rooms, halls, or corridors.

Effective Combinations of Cut Flowers.—Among the endless number of possible suggestions for floral combinations the following may be singled out for special mention.

Purple Spanish iris and foliage in a tall jar of shaded green pottery against very pale green walls or hangings; crimson and white peonies in a white porcelain basket against soft turquoise-blue; tiger-lilies and brown-beech sprays in a copper vase against a dusky-blue background; scarlet dahlias, carrot foliage, and brown bracken fronds in a brown pottery bowl against golden-tan; white lilac and daffodils in green glass vases against yellow; pink sweet-peas, white roses, and crimson carnations in turquoise-blue china bowls in a room furnished and decorated in Chippendale style, with a paper patterned with pink roses and blue love-knots.

Haphazard combinations, things of shreds and patches, are not to be tolerated. Scarcity is no excuse for putting two or three purple asters, a damask rose, a couple of African marigolds, and a bit of asparagus in one vase; it is infinitely better to fall back on arrangements of foliage alone, a form of floral decoration far too much neglected even by those who have an ample supply of the "raw material" at their very doors.

Receptacles for Cut Flowers.—As to receptacles, it may be taken as a general rule that they should not be so eccentric in form or elaborate in decoration as to divert attention from the flowers

Fig 150.—Cut Flowers, &c., in various Receptacles.

to which they are mere accessories. The outline and colour should of course be good; their material is less important, although a proper sense of the fitness of things will forbid the choice of a threepenny brown earthenware jar to hold rare orchids or a Venetian goblet as

Fig. 151.—Cut Flowers in various Receptacles.

a receptacle for buttercups. Much of the prettiest English art ware and some Japanese pottery is so porous that the water oozes through it and makes a damp patch on anything the vases may be placed upon. This can be remedied by putting a small piece of wax candle in the vase, setting it in a cool oven or on the hob until the wax is melted, and then turning it

about until every part of the interior is coated with a thin but even layer of wax. This effectually cures the oozing. The process need only be repeated when it is necessary to wash the vase out with very hot water.

It is an excellent plan to have in the house a certain number of receptacles to be kept full of flowers or foliage all the year round. In a plainly-furnished hall, for instance, a common red-brown pitcher—the Devonshire shape is the most picturesque—set on an oak stool will fill a corner admirably, and its ample size and convenient shape will afford plenty of scope for the decorator's talent. In spring it may be filled with boughs of Crab-apple, wild pear, or Blackthorn, later on with great fronds of Male Fern and tall foxgloves; from September to November a brave show can be made with small branches of autumnal-tinted leaves mixed with orange-red tritomas, and when the year is still further advanced, an effective group can be made of the silvery-white Honesty pods, sprays of Cape Gooseberry and the leafless twigs covered with silvery-gray or yellow lichen which are to be found in most hedgerows. Groups of foliage alone look well in big pitchers or tall, double-handled jars; oak and fir boughs, for instance, can be effectively blended with taller branches of birch, and small boughs of ordinary garden shrubs such as euonymus, box, aucuba, holly, and privet may be used successfully, if care be taken not to mass their rather sombre foliage too closely.

A pretty flower-stand, quite within the possibilities of home carpentry, is illustrated in fig. 152. It is in three tiers in white wood painted black or very dark green. Pots of blue Doulton ware stand on each tier, the lowest one filled with cuttings of evergreen, the next with an arrangement of flowers and leaves, and that at the top with roses and trails of Traveller's Joy hanging and twisted lightly round the supports of the stand, which is about 3 feet 6 inches high.

Wild Flowers.—Such "common" things as thistles have great decorative possibilities, and clumps of gorse in bowls of green Farnham or Belgian pottery may be used for a window-ledge or corridor with pleasing effect. For mixing with cut flowers the foliage of the French or Globe Artichoke is valuable, as are carrot-tops when bronzed by early frosts, and the feathery asparagus. A tall palm-stand, square or round, makes a good "show-table" for cut flowers. A rather tall jar should be placed on the top, and from it long trails of some creeping plant—smilax or asparagus fern, if the arrangement is an ambitious one; bryony, hops, or wild clematis, if conceived on more modest lines—may be twined round the supports of the stand, while low bowls of flowers should occupy the lower shelves.

Cut Flowers for the Fireplace.—It is not easy to decorate a fireplace successfully with cut flowers, if anything more than the simple jar or pitcher set in front of a small screen is desired. A pretty plan, however, is to have the hearth covered with a sheet of looking-glass edged with narrow troughs, also of glass, and to place on it a trumpet-shaped clear glass vase holding a very light and graceful group of flowers, the troughs being filled with small fern fronds and flowers of dwarf habit of growth. This arrange-

ment is very pleasing, carried out with Meadow-sweet, Flowering-rush, wild forget-me-nots, aquatic grasses, and water-lilies, or with yellow-flags, reeds, and marsh marigolds, the grate opening behind the vase being concealed by a curtain of pale sea-green silk. It may be adapted for a ball-room decoration in winter time by substituting for the vase a basket of silvered rush holding frosted holly and mistletoe and scarlet Van Thol tulips, backed with a curtain of either silk or white silver-printed Japanese crape.

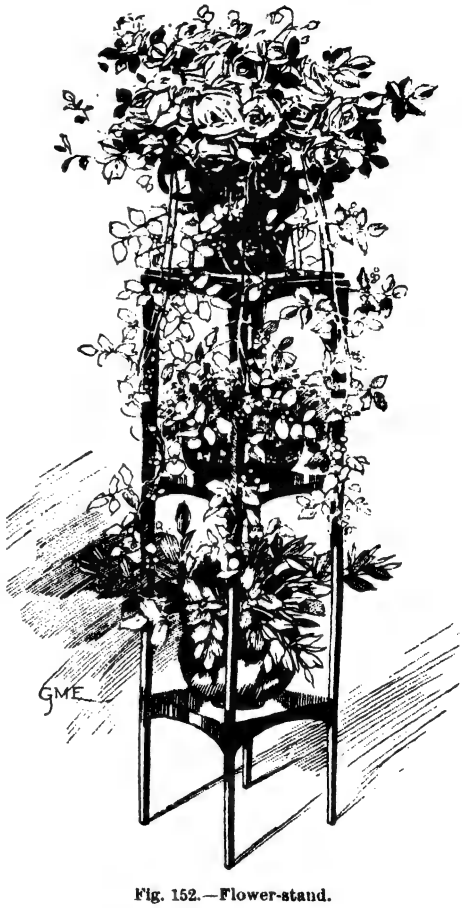


Fig. 152.—Flower-stand.

Cut Flowers for the Mantel-shelf.—It is not usual to decorate mantel-pieces elaborately with flowers except on the occasion of a ball or a wedding. Yet in summer time it is a pleasing custom to keep one mantel-piece at least in the house—that of the hall for choice—completely covered with blossoms and greenery. A tin or zinc tray must be fitted to the shelf to hold the necessary damp moss or sand, and this can be made high enough at the back to protect the wall-paper. If not, a piece of American cloth or oil-silk must be fastened to the wall by means of drawing-pins. The flowers and foliage should be carefully but not too formally arranged, the highest at the back and in the centre of the shelf, and graduated down to the fern-fronds and sprays of ivy, honeysuckle, Virginia-creeper, jasmine, sweet-peas, or whatever other trailing plant is chosen to hide the edge of the tin.

Flowers Grown Specially for the House.—It is, perhaps, a counsel of perfection to advise that if a garden of any size is possessed, flowers might be grown for cutting with a view to the special requirements of the various rooms in the house. Yet the suggestion could be carried out to a certain extent without difficulty. For example, if yellow and red combinations best suit the decorations of the principal rooms, then flowers of these particular hues might have extra space allotted to them, or if the drawing-room is daintily furnished in a light and fanciful style, blossoms of appropriate type, such as carnations and roses, Shirley Poppies, and all other

kinds of slim-stalked delicate-coloured flowers should be grown in abundance. When the house is large and sparsely furnished, with corridors and broad landings, free-growing, tall plants are valuable for filling up bare spaces. Giant sunflowers, hollyhocks, "red-hot pokers", and branches of flowering shrubs are of service here, and a corner in the wild garden may be devoted even to such weeds as Cow-parsnip and Hemlock for the sake of their foliage. Then, again, if the house be old-fashioned, with low-ceiled rooms and old English oak furniture, the plants grown for decorative purposes ought to be old-fashioned too, and should include all kinds of sweet-scented things: Lavender, Sweet-brier, Honeysuckle, and the Rosemary, that only flourishes "where the mistress is master too", according to an old saying. In the garden also should be planted "the wall-flower, the Stock Gilly-flower, the cowslip, Flower-de-luces, and Lilies of all Natures"—as many others indeed of the fair and fragrant blossoms whose quaint names are to be found in Bacon's "Essaye" as can be obtained.

(For "Floral Decoration of the Dinner Table", see under "Entertaining", vol. v.)

SUGGESTED COMBINATIONS OF CUT FLOWERS.

Spring.—Solomon's Seal, mimosa, and deep yellow tulips, white lilac, and parrot tulips; purple, lilac, and Spanish iris in shades of mauve, purple, and yellow; pale pink tulips, mauve Spanish iris, and purple Russian violets; white narcissi, yellow jonquils, and sprays of laurel or bay; pale pink anemones, early blue forget-me-nots and maidenhair fern; branches of Crab-apple blossom, pink tulips, and young oak shoots.

Summer.—Scarlet gladioli, white musk-mallow, and brown beech foliage; yellow broom, purple flags (common garden iris), and fronds of Male Fern; Ragged-robin, white columbine, grasses and Lady Fern; scarlet perennial lobelias and white Paris daisies; orange perennial poppies, green wild oats and Bracken fronds; tiger-lilies and branches of beech, brown and green; white cluster-roses, scarlet geraniums, and trails of Japanese honeysuckle.

Autumn.—White lupins, scarlet cactus dahlias, bronze carrot-tops, and purple beet; pale mauve chrysanthemums or large Michaelmas Daisies and sprays of Spanish Chestnut leaves, turning from green to yellow; red-brown chrysanthemums and maple foliage; small white Michaelmas Daisies, scarlet single dahlias, and asparagus; wild cornel (dogwood), teazles, scarlet hips, and trails of Traveller's Joy; perennial sunflowers, Virginia Creeper, and sumach foliage; yellow chrysanthemums and sprays of the Snow-berry tree; torch-lilies (tritomas), large white marguerites and red and brown foliage; barberry and rowan-berry sprays, white single dahlias, carrot foliage, and hips.

Winter.—White Honesty pods and scarlet geraniums; Christmas-roses and yellow-berried holly; branches of bay, black-berried ivy, and scarlet Van Thol tulips; ferns, mistletoe, white chrysanthemums, and scarlet poinsettias.

HEATING AND LIGHTING.

HEATING ARRANGEMENTS.

Methods of Diffusing Heat.—For a clear understanding of the various modes and processes used, and of the difficulties to be encountered, in the artificial heating of dwellings, a short explanation of the principles involved will be necessary.

Heat is transmitted in three ways—by radiation, by convection, and by conduction. In the first case the rays flow in straight lines in all directions from the source, and, without materially warming the medium through which they pass, are eventually absorbed by the bodies on which they impinge. In convection, which requires either a gaseous or a liquid medium, the particles nearest the source of heat, becoming warm, expand and rise, allowing others to take their place, and thus a current is established which continues until the whole of the medium is of uniform temperature. In conduction, the heat is transmitted from particle to particle, as when one end of a metal rod is placed in the fire. Open fireplaces are illustrations of the first process, and close stoves and hot-water pipes chiefly of the second, though a certain amount of radiation takes place from them also.

These two modes of diffusing heat may be illustrated by very familiar examples. The sun's heat reaches us by radiation, the air itself being warmed only to a very slight extent during the passage of the rays. It is not until the earth's surface is heated that the air resting on it becomes hot by contact with it, and that the convection begins to be considerable. Hence the daily maximum temperature is generally reached only shortly before 3 P.M., and not at noon as might be expected. *Again, it is possible* to hold one's finger quite close to the side of the flame of a candle or a gas jet without suffering any inconvenience, the heat being radiated from this part, but if the hand is put at even a considerable distance from the top of the flame the heat cannot be borne, for it is here transmitted by convection.

OPEN FIRES.

There can be no doubt that, in England, the most popular method of warming a room is by means of the open fire, and much may be said in its favour. (1) The cheerful appearance which it presents is by no means an unimportant factor in securing the comfort and happiness of an ideal home, and no other arrangements, however economical or efficient, can give

the same feeling of brightness. (2) As an aid to ventilation the open fireplace is most valuable. In an ordinary house the chimney is the chief outlet for foul air, and this is the case whether there is a fire in the grate or not. When the fire is lighted the air in the chimney is warmed, and, being lighter than cold air, it is forced up the flue by a fresh supply of cold air which rushes in from below to take its place, and thus there is a constant current through the room. (3) Owing to this perpetual interchange the air does not become too dry. This is an important advantage, because too dry an atmosphere is extremely irritating to the respiratory passages. (4) Rooms warmed by an open fire with a good draught require less frequent re-papering and painting than those where stoves or hot-water pipes are used, the dirt in the former case being chiefly confined to the fireplace and chimney.

On the other hand, an open fire has these disadvantages. (1) It is an inefficient method of introducing warmth, the heat not being distributed equally to all parts; persons or objects near the fire are overheated, whilst the remoter portions of the room are very imperfectly warmed. The effect of radiant heat lessens according to the square of the distance, so that the heat at 10 feet is one hundred times less than at 1 foot from a fire. (2) There are cold draughts along the floor. (3) A great amount of heat passes up the chimney without entering the room at all, and this, added to the imperfect combustion of the coal, makes the open fire a very wasteful and costly method of heating. (4) The constant attention required by an open fire involves a large amount of domestic labour, and if the draught of the chimney is not good, the decorations and hangings in the room are soon damaged by soot and smoke.

The first cost of an open fireplace is relatively small, and to a tenant means merely the cost of adjuncts, such as fender and fire-irons. In the case of any person building a house for his own occupation stoves may be slightly cheaper, but the difference between the two is trifling. In Scotland the fireplace is often not a fixture; a new tenant may have to supply his own grates just as he supplies his own gas fittings.

Common Defects of Grates.—Many of the above objections are due to structural defects, which should be remedied if possible. (1) The grate should not be placed against an outside wall, as this position involves loss of heat and tends to make it smoke, since, the back of the chimney being placed against the cold outside air, a large amount of heat is conducted away, while the liability to down-draughts is increased owing to the length of time required to warm the column of air in the chimney. (2) It should not stand too far back under the chimney, as this also causes waste of heat. (3) The back and sides should not be made of iron, partly because that metal, being a very good conductor, absorbs the heat, and partly because in such cases there is frequently a space left between the back of the grate and the wall of the chimney, which results in a loss of heat by radiation as well as conduction, and also accumulates soot. (4) The bars of the grate should not be too far apart, or placed at a great

distance from the hearth; otherwise the coal burns too quickly, and pieces of coal are liable to fall through before they have been properly burned; also, the floor level in such cases is always cold and draughty.

The inventor of the Teale fire-grate has laid down some very clear directions as to the construction of fire-grates. Briefly stated, his advice is to the following effect:—(1) As little iron as possible should be used. (2) The back and sides of the grate should be of fire-brick, which has the property of retaining much more heat than iron, and for a longer

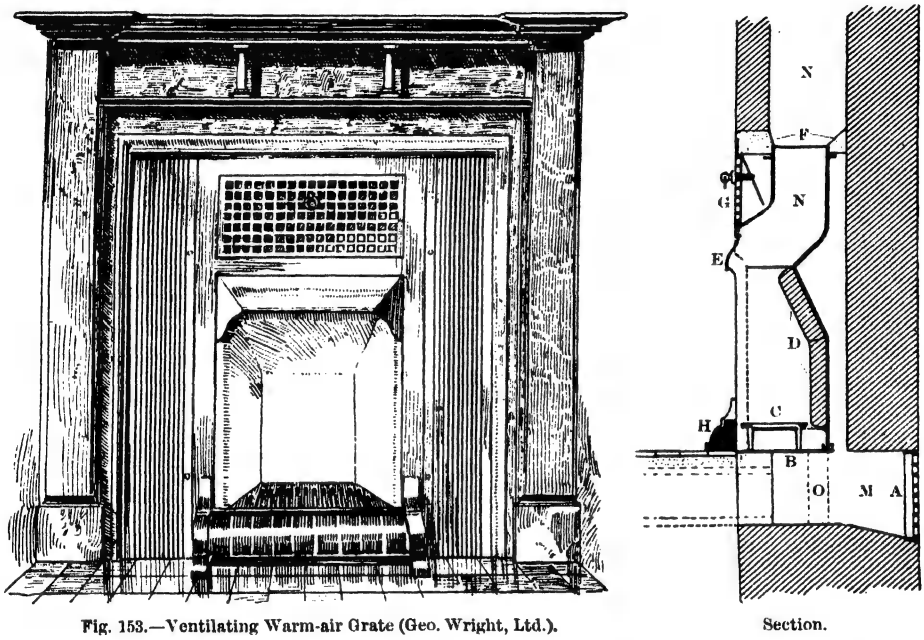


Fig. 153.—Ventilating Warm-air Grate (Geo. Wright, Ltd.). Section.

The grating above the fireplace admits pure warmed air into the room; the fluted panels at the sides are removable for cleaning the flues. A, External air grating. B, Iron hearth-plate supported by brick on end, O. C, Loose grate, standing on legs. D, Fire bricks. E, Canopy. F, Sealing-off plate. G, Warm-air grating controlled by valve to screw. H, Removable roll front. M, Air chamber. N, Smoke flue.

time; and further, a fire is much more easily kindled in a grate of this kind than in one made of iron. (3) The back should lean well over the fire; for, becoming hot speedily in this position, it radiates the heat into the fire itself, and thus helps to secure more perfect combustion and to reduce the amount of unconsumed smoke passing up the chimney. (4) The grate should be wider in front than at the back. If the two sides are parallel the heat from them is thrown back into the fire instead of into the room. For a small room the depth should be about 9 inches, and for a large one not more than 11. (5) The slits in the bottom grating should be narrow, and the bars in front should be narrow and vertical rather than horizontal. (6) The space beneath the fire should have a close-fitting shield, or economizer, by means of which the rate of combustion may be regulated.

In some patterns of grate the fire-brick is covered with tiles coloured

to harmonize with the furniture and decorations of the room, one example of this being the old Leamington grate. Fireplaces may also be obtained made almost entirely of glazed tiles. In such cases the back of the grate is lined with fire-brick, and the only iron used in its construction is in the bars. These fireplaces, although more expensive than ordinary iron and tile grates, are more satisfactory in many respects, the tiles themselves absorbing a large amount of heat and serving as radiators. Such a fireplace may indeed be almost regarded as a storehouse of warmth, which is given off so slowly that the room does not become chilled for a considerable time, even after the fire has gone out. An additional advantage is that such a fireplace is very easily cleaned and kept clean, no blacklead being necessary except for the bars.

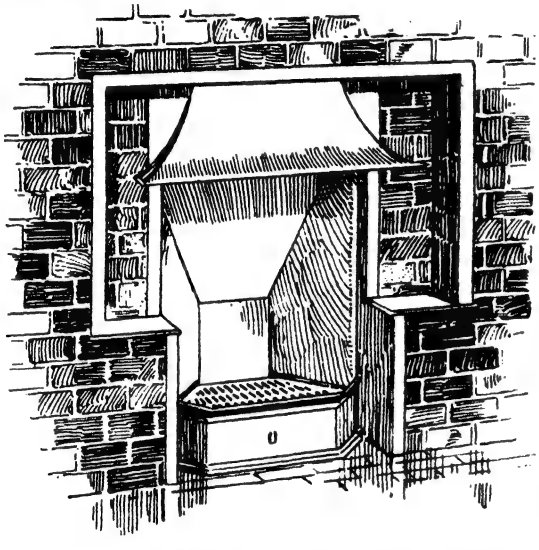


Fig. 154.—"Heaped" Fire (Bratt, Colbran, & Co.).

Many grates at the present day are fitted with movable canopies or blowers, which regulate the combustion to some extent. A very efficient grate has been designed with special regulating doors for this purpose.

In many of the most efficient and popular modern grates the front bars are omitted. The bottom grate is usually retained, so that the ash can fall through, and so that air can be supplied to the bottom of the fire when for any reason more rapid combustion is desired. In some cases the bottom grate is at or below the level of the hearth. When fireplaces of this kind are fixed in existing rooms, it may be necessary to raise the hearth about 4 inches above the floor in order to avoid the labour and expense of cutting away the old hearth. One of the great advantages of the low-level fire is that the heat is radiated by the fire and by the projecting fire-brick back on to the floor of the room, and in this way the cold draughts along the floor are very much reduced. Much of this advantage is lost by raising the hearth. On the other hand, it affords facilities for making one or more ducts through the hearth for supplying air from the room to the space under the fire; the inlets to these are usually covered with hit-and-miss gratings so that the supply of air can be easily regulated. Sometimes a wider duct is formed to allow an ash-tray to be inserted or removed while the fire is burning. A cheap grate of this kind suitable for country cottages can be built with ordinary bricks or with fire-bricks.

In a modification of this type of grate (fig. 154) the bottom grate and economizer are retained, but each of these is complete in itself and is not attached in any way to the fire-brick back. A third fitting, called a "portable hob", is supplied to fit around the front of the grate, and not only allows a larger fire to be made without increasing the risk of cinders falling on to the hearth, but also affords support for a kettle. The grate and economizer are usually of iron, but the portable hob may be of iron, copper, or brass, and as each piece is separate, renewals can be effected at very little cost and without requiring any labour in fixing.

Some fire-grates (fig. 153) are made with air-chambers, in which fresh air from the outside of the building is warmed before being admitted to the room. The general arrangement is the same as in the ventilating stoves (figs. 155 and 156). The principal advantage of these grates is that cold draughts along the floor are in a great measure prevented.

How to Light a Fire.—The simple matter of lighting a fire to some persons presents great difficulty. The first thing is to lay it properly.

After cleaning the grate, and sweeping away the soot from the register and lower part of the chimney, a few cinders should be put at the bottom of the grate, then some crumpled paper, then a few chips or sticks placed crosswise, and finally the small pieces of coal and some of the larger cinders. Care must be taken that these lumps are so arranged as to allow a free passage of air, which is as necessary to the lighting of a fire as coal and wood. The light must be applied to the paper at the bottom of the grate.

The custom of commencing or leaving off fires at a certain fixed date is very absurd and unhygienic; climatic conditions are not regulated by the date of a spring cleaning, and to put out the fires in May and wait until October to resume them is ridiculous.

STOVES

A stove is differentiated from an open fire mainly by the fact that the fuel is burned in a close chamber, and consequently almost all the heat generated is utilized.

There are two chief varieties of stoves, closed and open, both of which burn one of three substances—(1) Coal or coke, (2) gas, (3) oil. If the heating arrangements are to comply with the laws of health, flues are essential in the case of coal, coke, or gas, and advisable with oil.

The conditions needful to secure success are somewhat similar in every case, and as they all have some common features, it will be well first to consider this system of heating generally in respect of its merits and defects. On the former score it may be said that (1) the first cost is small, and in this matter a stove is slightly cheaper than an open fireplace; but, of course, a tenant living in a house already provided with fireplaces will find the addition of stoves an extra expense. (2) The annual cost is very small as compared with other methods, the combustion of the fuel being much slower and more perfect than in ordinary coal fires, while it is

possible in some cases to effect an economy in the kind of fuel burned. (3) Stoves are also more efficient than open fires because, the heat being distributed largely by convection, the air of the room is more equally warmed. At the same time the sides of the stove and the flue itself act as radiating surfaces.

The use of stoves is, however, open to many objections. (1) The aid to ventilation is much less than with open fires, partly owing to the small size of the flue as compared with an open chimney. (2) The air of the room is rendered too dry. (3) There is a disagreeable burnt smell, due to the fact that the organic particles, always present in the air of every inhabited

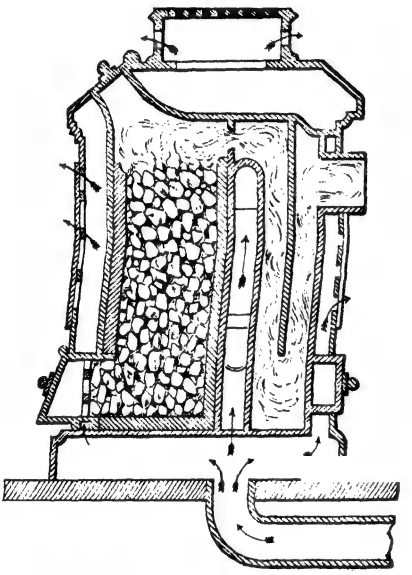


Fig. 155.—Section of Musgrave's Stove.

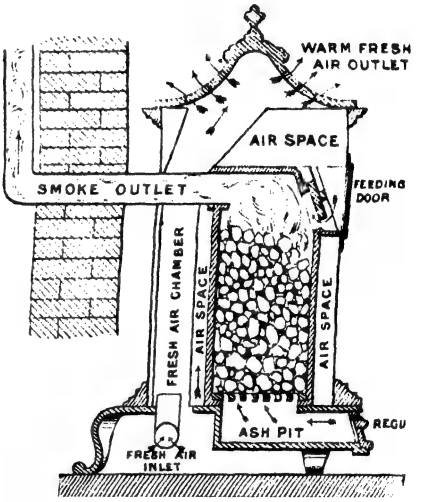


Fig. 156.—Section of Slow-combustion Stove.

room, come in contact with the hot iron and are thus charred. (4) The charred particles are carried about by the heated currents of air, and soon discolour the walls and other surfaces on which they settle. (5) There is an escape of a dangerous product of combustion—carbon monoxide—in cheap, badly-fitting stoves, and possibly in all made of cast-iron. To this very serious defect the headaches and drowsy feelings from which so many people suffer in stove-heated rooms are due. (6) A stove is less cheerful than an open fire.

A great many of these defects may be remedied. The imperfect ventilation of the room may be somewhat improved by the use of a ventilating stove which admits fresh warm air. Many stoves are now specially constructed for this purpose. Fig. 155 gives a sectional representation of one which admits outside air by a pipe underneath the stove. The stove itself consists of an outer case, shown by the outside lines, the space between being divided by ribs of metal into a series of air-

chambers, in which air entering from below circulates, becomes warmed, and rises into the room through openings at the top and sides of the stove. There is also in front of the stove a special arrangement of tubes which supply atmospheric air for the combustion of the fuel.

The constant evaporation from a vessel of water placed on the stove will largely reduce the dryness of the atmosphere. The disagreeable burnt smell and the escape of carbon monoxide may be avoided if the stove—preferably made of wrought iron, which is more resistant than cast—is lined throughout with fire-brick. The joints of a stove, whether of cast or wrought iron, or tiled, should be absolutely perfect, to prevent the gases of combustion from entering the air of the room. For this reason, it is false economy, from the point of view of health, to buy cheap, badly fitted stoves. A very good form is one made of tiles with a fire-brick lining. In Britain this kind of stove is usually open, and it has many points in its favour, although the first cost is great, and more fuel is consumed than in an ordinary close stove. The appearance is distinctly more cheerful, the amount of heat given out is greater, and the stove can be easily cleaned. Many stoves are adapted for burning anthracite coal, and when this is used the fire can be kept burning night and day without any difficulty. In Sweden and other parts of the Continent, a round closed tile stove, somewhat resembling a pillar, is used in all sitting and bed rooms. It is fitted with doors, which regulate the rate of combustion, and is highly satisfactory as a heat-giver. The cheerful appearance so delightful in an open grate is entirely lacking in some kinds of close stoves, but many are now manufactured with transparent mica panels or doors, the fire being thus rendered visible to some extent.

The exterior of many stoves is constructed with "gills" to afford an extra surface for radiation. They are very useful for warming large halls and passages, but for an ordinary room those with a plain surface will be found quite sufficient.

In the matter of fitting there are a few points to which attention must be drawn. If the stove is connected with the chimney care must be taken to see that the latter is not liable to down-draughts. Such liability is, unfortunately, a common defect in chimneys, being often caused by the too close proximity of other buildings or even of trees, in which case the defect may be remedied by increasing the height to a considerable extent.

Wind guard-tops or cowls are not always satisfactory. If the room in which the stove is to stand is unprovided with a chimney, the stove will, of course, have a flue of its own, consisting of an iron pipe leading to the outside air; the pipe should have as few bends in it as possible, and the joints should be most carefully cemented. Where the stove is to be fixed in a room with a wooden floor, insurance companies oblige their clients to provide a metal or flag base, on which the stove must stand.

Gas Stoves and Fires.—In considering the various gas-heating arrangements it will be best to follow the classification made at the commencement of this article—(1) those which warm by means of radiant heat; (2) those

which warm the air by convection; and (3) those which combine the two methods.

The type which warms by means of radiant heat is exemplified by the open gas fire, which consists of a row of Bunsen burners placed under a grate containing special balls or asbestos fibre. This presents as cheerful an appearance as a coal fire, and has the advantages, in common with all forms of heating by gas, of being easily lighted, requiring no attention, and giving rise to no dust or dirt. In the climate of the British Isles this ready means of obtaining warmth at a short notice is a great convenience, but the amount of heat radiated is not equal to that of a coal fire, and all authorities agree that, for the heat obtained, the annual cost is greater.

Where gas fires are used, there must always be a flue conducting the products of combustion into the open air. If there is no chimney this flue should be carried through an outer wall. Doctors, with but few exceptions, recommend gas fires, especially in bedrooms, owing to the possibility they afford of having the room warm in a short time, and the comparative freedom from noise and dust.

The second type includes all forms of closed gas stoves. There are many different varieties, some good, some bad; condensing stoves with or without a flue, and ventilating stoves, properly so called, are included amongst them. In the ordinary condensing stove the gas jets are burned in a cylinder having an arrangement of tubes for collecting some of the products of condensation and combustion into a pan at the bottom of the stove, this pan requiring to be emptied daily. No special flue is provided for the escape of the products of combustion, and as they do not all fall down with the water (itself a product) into the pan at the bottom, the stove is less healthy than some others, and indeed cannot be recommended for use.

The ventilating stoves are a great improvement on this form of close stove. In the case of the Calorigen the stove is made of rolled iron, and contains a coil of wrought-iron piping, which opens at the top of the stove, and is connected at its lower end with a pipe communicating with the outer air. There are also two pipes or flues leading from the stove to the outer air, which carry away the products of combustion. The burning gas jets serve the double purpose of heating the stove itself and the air contained in the coil within it.

The construction of the Euthermic stove (fig. 157) is slightly different. The body of this stove is made of corrugated iron, thus giving an increased surface for radiation, while within is a metal drum, as it is called, which, like the coil in the Calorigen, communicates by means of a pipe with the external air, and also has an opening in the top of the stove to pass the warmed fresh air into the room, and a flue for carrying off the combustion products. The main difference between the two stoves is that as the Euthermic is not closed at the bottom, it helps to ventilate a room.

The third type is one which gives out heat by both radiation and convection. Examples are the open stoves so commonly used known as

incandescent gas fires (fig. 158), which may be fitted in front of an ordinary fire-grate or in a fireplace recess.

Either asbestos or filigree iron is used to radiate the heat, the hollow balls of asbestos and fireclay being the most satisfactory for the purpose. These stoves are very efficient heat-givers and have also something of the cheering effects of a fire, but attention must be paid to the general principles of ventilation, if health is to be considered. Dr. Reid, in his well-known *Handbook of Practical Sanitation*, says in this connection: "It is essential for ventilating purposes that the opening of the fireplace proper should be quite free and not filled up with sheet-iron as is often done, otherwise the

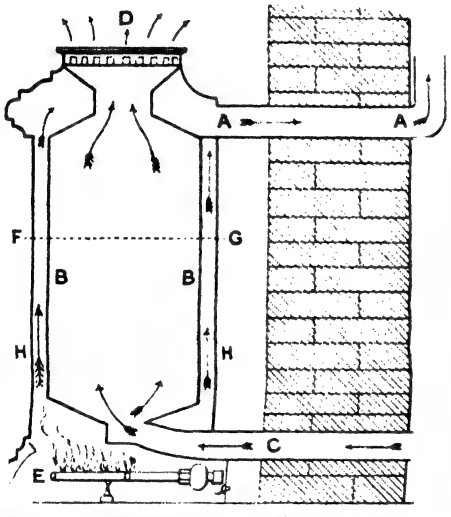


Fig. 157.—Section of Bond's "Euthermic" Stove.

HH, Outer case, inside which is metal drum, B; C, tube for conducting outside air into B; D, grating for discharging warmed air into room; E, gas-jets. Products of combustion escape by flue A.

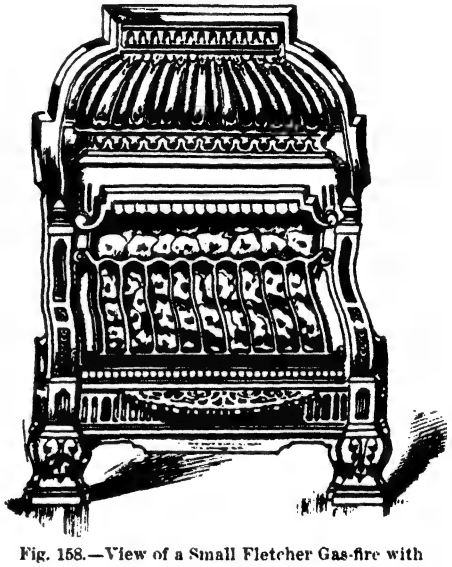


Fig. 158.—View of a Small Fletcher Gas-fire with Iron Fret Front.

ventilating effect of the chimney will be greatly lessened, particularly when the fire is not actually burning. The air in bedrooms, in which gas stoves have been fixed in the objectionable manner just described, is very foul in the morning if the stove has not been burning all night, and in the absence of any special outlet ventilation." The only advantage of filling up the fireplace opening is that a smaller amount of heat is lost by way of the chimney, as the only heated air which enters the chimney is that which has passed through the stove itself.

In the new "Sheraton" design the fire-basket closely resembles that of a good fire-grate, and has a firebrick back, which radiates the heat into the room. Air is drawn from the room in the same way as in an ordinary grate, but the ventilation obtained is less as the flue is smaller. Another variety of gas-fire (fig. 159), known as the Welsbach Kern Radiator, contains a number of perforated clay tubes, in which a mixture of gas and air is burnt. In the larger sizes, such as that shown in the illustration, the

tubes are in two groups, each group being controlled by a separate tap. The radiator shown has a vaporizer in the base, and the grate or fireguard can be turned down to form a hob; the top can be lifted off to allow a kettle to be boiled, and provision is made for a flue at the back.

It is impossible to enumerate all the forms of gas stove now in use, but a warning must be uttered against the use of any kind unprovided with an outlet flue or pipe. These stoves are very cheap, and they make the air of a room hot, but at the same time they contaminate and poison it.

Gas stoves may be hired from a gas company.

It is worth mentioning here that the habit of warming a bedroom by lighting the illuminant gas should be avoided.

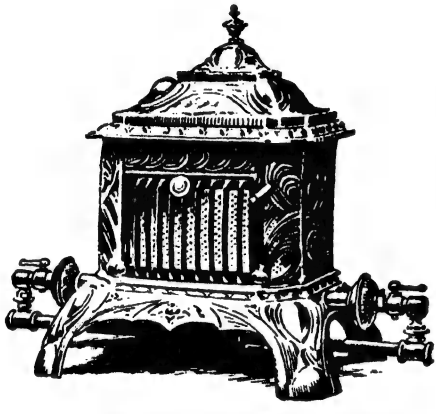


Fig. 159.—Welsbach Kern Radiator or Gas-stove.

Oil Stoves.—As sources of heat, oil stoves present many objections. They are troublesome to keep clean, and if neglected in this respect are certain to smell unpleasantly. They use up a large amount of oxygen, and if placed in the middle of a room, not in the fireplace, they vitiate the atmosphere, as all the products of combustion are passed into the room itself.

The first cost of oil stoves as compared with those burning gas, coal, or coke is small, no fitting being necessary. The annual cost is comparatively large, if the stove is in constant use. This does not apply to localities where coal is sold at prohibitive prices.

There are infinite varieties of oil stoves, burning various sorts of wick, and varying in price from half a crown upwards. The more expensive kinds, usually made of glazed ware, are naturally the more efficient. A small single-wick stove, costing 3*s.* 6*d.*, will keep a room of 1000 cubic feet at a temperature ranging from 50° Fahr. to 65° Fahr., according to external conditions. The cost, if the stove is kept burning for twenty-four hours with oil at 7*d.* per gallon, is about 3*d.* The kind of oil used makes a difference in the annual cost of such a means of heating, but the poorer kinds are not to be recommended.

HOT-WATER PIPES AND RADIATORS

In the case of hot-water pipes and so-called "radiators" the heat is transmitted by convection. Although they constitute a very efficient way of warming a house, they have some drawbacks; they involve a rather large first cost, are wanting in cheerfulness, and render the air of a room more or less stuffy. Another disadvantage is that fine particles of dust, which are always present in the air of a room, are charred by contact

with the heated surfaces, and soon discolour the walls and paint above. The chief advantages of hot-water pipes and radiators are that they involve very little domestic labour, cost little for fuel and maintenance, and can be arranged to distribute the heat equally or to concentrate it in positions where cold draughts are usually felt, such as under windows and near doors; also by means of valves the heat can be regulated or shut off altogether. A hot-water apparatus is particularly useful as a supplementary source of heat in connection with rooms where open fires are used. In some cases the hall, staircase, and passages only are fitted with pipes and radiators, and this arrangement adds greatly to the comfort of the living rooms, as cold draughts from the doors are prevented, but pipes or radiators under the windows of the rooms themselves are required to counteract the chilling effect of the glass and to warm the air which enters the rooms through the chinks around the windows. Fresh air from the outside of the building can be passed through tubes in a radiator, and thus be warmed before entering the room; but even if ventilating radiators of this kind are not provided, it is not likely that the ventilation of a room having an open fire will be adversely affected by installing a hot-water apparatus. On the contrary, the additional warmth obtained from the apparatus will allow one or more windows to be kept open on many days during which they would otherwise be closed.

In exposed situations it is almost impossible to warm a house comfortably in a severe winter by means of open fires only, and the best arrangement under such conditions is the dual one of open fires supplemented by hot-water apparatus. The latter ought not to be designed to provide all the heat required to warm the house, but sufficient only to prevent cold draughts and to warm the hall, staircase and passages, and those parts of the rooms which are not adequately warmed by the radiant heat from the open fires. In this way a greater degree of warmth can be obtained at very little additional cost, and the efficiency of the open fire as an extract ventilator is not impaired.

Undoubtedly the best kind of hot-water apparatus for houses, and also for plant-houses and conservatories, is that known as the *low-pressure* system. This consists of a boiler containing a closed chamber or series of chambers in which the water is heated to a temperature approaching boiling-point. From the top of the boiler a "flow-pipe" is laid to the rooms which are to be heated, and is continued back as a "return-pipe" to the boiler, to which it is connected near the bottom. These pipes are known as the "main circulation pipes". Branch circulations can be formed by connecting the branch flow to the main flow and the branch return to the main return. Water is supplied to the apparatus from a feed tank placed above the highest point in the circulation, a small pipe being laid from the tank to the boiler. Occasionally the tank is filled by hand, but a better plan is to take a branch supply-pipe to it and to fit a ball-valve in the tank on the end of this pipe, so that the loss of water by evaporation is automatically made good.

The general arrangement of an apparatus of this kind is shown in fig. 160. It will be seen that the boiler is placed at the lowest point in the circulation. From the boiler the flow-pipe is laid with a rise which ought not to be less than 1½ inch in 10 feet, and a fall of the same amount (or more) is given to the return-pipe. As cold water is heavier, bulk for bulk, than warm water, the colder water in the return-pipe gravitates to the boiler and drives the heated water from the boiler into and along the flow-pipe. In its passage along the flow- and return-pipes the water parts with some of its heat, and thus a constant circulation is maintained when the boiler fire is burning. The rapidity of the circulation is therefore directly due to the difference in temperature between the hot water in the boiler and the cooler water in the return-pipe, and has nothing whatever to do with the pressure of the water in the apparatus, due to the height of the feed cistern. The rapidity of the circulation may, however, be reduced in various ways. If the boiler is inefficient the water cannot be raised to a high temperature, and the amount of heat given out by the pipes will therefore be reduced, with the result that there is a smaller difference in temperature between the flow and the return water. If the circulation-pipes are too small, the circulation may be retarded by friction. If the flow-pipe has not sufficient rise, a similar retardation is caused; and if it is laid to fall instead of to rise, or if a deep dip is formed in it, the circulation may be entirely checked. Circulation may also be stopped by an accumulation of air in the pipes, and it is therefore necessary to provide either air-cocks or air-pipes (carried up to a point above the level of the feed tank) so that the air can be released either by hand or automatically.

The boiler may be of wrought iron or cast iron, and either "independent" or set in brickwork. For small houses the independent boiler is the more popular. The principal point to be noted is that it must be of ample power. A boiler which is too small for its work is certain to be excessively fired, and this involves extra labour and a great waste of fuel, besides shortening the life of the boiler. A safety-valve, preferably of the simple dead-weight type, must be fitted to the boiler, so that if at any time the circulation-pipes are blocked with ice the pressure in the boiler will be automatically relieved before it approaches the danger point. A draw-off pipe and cock must also be fitted to the boiler, so that all the water can be drawn off. A damper is required to regulate the draught, and stoking tools are also necessary.

The pipes themselves were formerly the only heat-emitting surfaces, and were usually of cast-iron 3 or 4 inches in diameter. This method is still employed in plant houses, where the large volume of water contained in such pipes is useful in maintaining the temperature uniform. Large pipes are, however, unsightly in private houses, and for this and other reasons a combined system of pipes and radiators is now almost invariably adopted. In some cases the radiators are the only heat-emitting surfaces, the pipes themselves being covered with non-conducting materials. Among

the advantages of this method the following are worthy of mention:—(1) The pipes may be much less in diameter, and may be laid under the floors or concealed in other ways; (2) the heat can be concentrated at or near those points where draughts originate, such as windows or doors; (3) the heat at each radiator can be regulated or shut off without interfering with the circulation to the other radiators; (4) the radiators can easily be arranged to warm air admitted to the room from outside; (5) the volume of water contained in the apparatus is comparatively small, and the maximum temperature can therefore be obtained in a shorter time.

When radiators are used, they may be connected to the circulation-pipes in either of two ways, which are known as the "one-pipe" and "two-pipe"

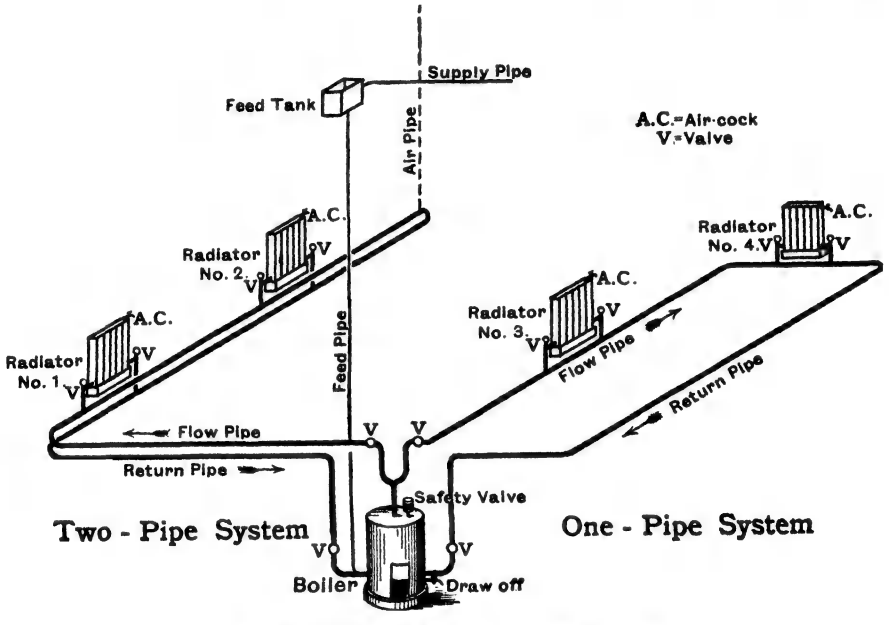


Fig. 160.—Low-pressure Hot-water Heating Apparatus.

respectively. These are shown in fig. 160. In the two-pipe system, which was the first to be adopted, the main return-pipe is fixed below the main flow-pipe, and the branch flow to the radiator is taken off the main flow, the return from the radiator being taken back to the main return. As a rule, this system requires more piping than the one-pipe system, and there is a danger of what is known as "short-circuiting"; in fig. 160, for example, the main portion of the circulating water may short-circuit through radiator No. 1 and back to the main return-pipe, and the other part of the system will then be insufficiently heated. This defect can usually be prevented by a careful adjustment of the sizes of the branch connections, and by placing them in suitable positions in relation to the mains.

In the one-pipe system a single main pipe is laid in a circuit around the rooms to be heated, and each radiator is connected by a branch flow and a

branch return to this pipe. The main is laid to rise in the first part of its length and to fall in the latter part, the first part being the flow and the other the return. It is obvious that if all the radiators are in use the hot water must pass through them all in succession, and the temperature of the water will be reduced at each successive radiator. To obtain the same heating efficiency the second radiator must be larger than the first, the third larger than the second, and so on, counting the radiators in succession from the boiler in the direction of the circulation. This system, therefore, while it may effect a saving in the length of pipe, involves extra cost in radiators. In the two-pipe system the water cooled in passing through any radiator is returned at once to the main return-pipe, and if the main flow-pipe is covered with non-conducting material the difference in temperature between the first and last radiator is very little. Again, in the one-pipe system the main must be of the same diameter throughout, but in the two-pipe system the maximum diameter is required only for the flow- and return-pipes between the boiler and the first or second radiator, and smaller and smaller pipes may be used in succession as the other radiators are

sse

Either of the two systems gives good results if it is properly installed, but in some buildings there are special conditions which render it necessary to adopt one system in preference to the other. If the one-pipe system is selected, the main ought to be protected by a good non-conducting material, such as asbestos or magnesite, except those portions which, in the absence of radiators, are intended to serve as heating surfaces.

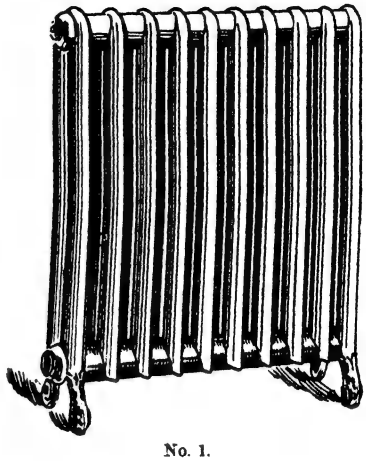
Radiators of two kinds are shown in fig. 161, No. 1 being of the ordinary type, and No. 2 a ventilating radiator, by which air from the outside is warmed on its way to the room. The radiators are built up of cast-iron sections, each section having one, two, three, or four water columns. The height, size, and number of the sections are varied according to the amount of heating surface required. In houses some method of regulating the heat at each radiator is desirable, and for this reason a valve is usually fitted on the connection to the radiator. It is a good plan to provide two valves, one on the inlet and the other on the outlet, so that any radiator can be disconnected and removed with the least possible amount of trouble. Each radiator must have an air-cock or an air-pipe at the highest point, so that the air contained in the system initially, and also that given off by the heated water at a later stage, can be easily expelled. An air-pipe must be carried up to a point above the level of the feed tank, and as it releases the air automatically, it is on the whole better than an air-cock. The ordinary air-cock must be operated by hand, but automatic air-cocks are also made.

In many houses two or more circulations, fed from one boiler, are fitted up to different parts of the building. Full-way screw-down valves ought to be fitted on the flow- and return-pipes of each circulation as near the boiler as practicable, so that each circulation can be shut off without interfering with the other parts of the system. This is useful not only when repairs or alterations must be made in one circulation, but also when it is

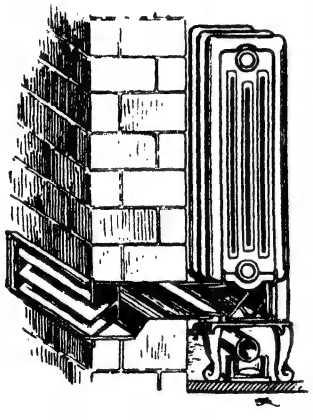
required to heat one part of the building more rapidly or to a higher temperature than another part.

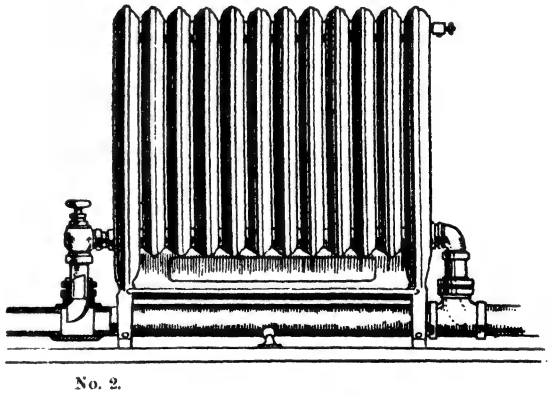
A simple low-pressure apparatus can be heated by a boiler placed at the back of a kitchen range or in an ordinary open fire-grate. In the latter case the boiler usually takes the form of a small coil of wrought-iron tubing, one end of which is connected to the flow-pipe of the circulation, and the other end to the return-pipe. The circulation-pipes can be arranged to heat one or more rooms besides that in which the fire-grate is placed, but as the boiler-power is low the system must be kept within moderate limits. The feed tank, draw-off pipe, air-pipes or cocks, and safety-valve must be provided as in a more extensive system, and radiators can be connected to the circulation-pipes if desired.

The low-pressure system of hot-water heating is well adapted for private houses. If properly installed, it is free from danger,



No. 1.





No. 2.

Fig. 161. Radiators. No. 1, Ordinary Sectional; No. 2, Ventilating.

requires little attention, and gives out a large amount of heat in proportion to the fuel consumed. The heat can be easily regulated; and as the temperature of the pipes and radiators never exceeds boiling-point, and is seldom more than 180° Fahr., the air is not excessively dried. If the apparatus is designed to give a temperature of about 55° Fahr. in halls and passages, and 45° in living rooms and bedrooms, when the external temperature is 32°, open fires being used to give the additional heat required for comfort, the result will be in every way satisfactory.

The high-pressure system of hot-water heating cannot be recommended for houses. Briefly, it consists of a circuit of wrought-iron pipes of $\frac{7}{8}$-inch

bore, part of the circuit being coiled to form a boiler. The pipes, after being filled with water, are hermetically sealed. An expansion-pipe containing air is connected to the circuit, the air being compressed as the water expands under the influence of heat. Obviously the heated water is always under pressure, and the pressure increases as the temperature is raised. Boiling of the water is prevented by the pressure, and it is therefore possible to raise the temperature far above 212° Fahr. The high pressure thus obtained is a source of danger, and the high temperature dries the air of the room and chars the particles of dust which come in contact with the pipes. The system is well adapted for workshops of various kinds where very high temperatures are required, but is not suitable for private houses.

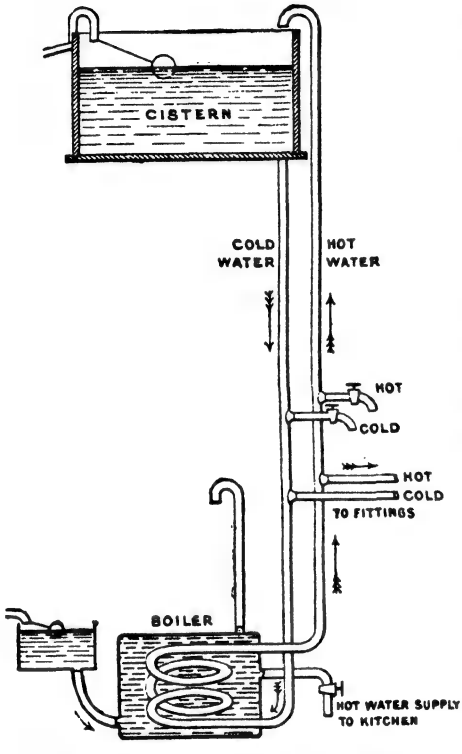


Fig. 162.—Hot-water Supply: Worm-boiler System.

Modifications of the systems already described are in use, and heating by steam instead of water is often adopted in factories and large buildings; but for ordinary houses the low-pressure system of hot-water heating is the best.

Houses are occasionally warmed by hot air, but for the reasons stated this method is more suited to large institutions than to private dwellings.

HOT-WATER SUPPLY

Various methods are employed for supplying houses with hot water, some of them safe and efficient, others not so satisfactory.

A form which is still to be found in old houses is known as the worm-boiler system (fig. 162). It consists of a coil of piping within the kitchen boiler constituting the worm, supplied with water from the cistern at the top of the house, the boiler itself being supplied by a small cistern near the range. Both boiler and worm are fitted with escape-pipes. The water in the worm is heated indirectly by the water in the boiler. This arrangement is safe so long as the supply of water in the boiler is maintained, otherwise, in a red-hot dry boiler the joints of the worm may give way; but there is this disadvantage, that the hot supply of the kitchen comes directly from the boiler, so that if much were to be drawn out the water in the worm would soon cool down, and the rest of the house would suffer. Other disadvantages are: (1) there is no storage for hot water, and therefore the amount which can be drawn at one time is very little (not enough

for a hot bath); (2) as the water in the worm is heated indirectly, a high temperature cannot be obtained; (3) there is no circulation of hot water, and consequently the water in the branch pipes soon cools; and (4) the water in the large cistern may be heated in some measure by conduction or convection along the cold-supply pipes, and this is a disadvantage if the cistern is used to supply the cold-water taps. In fact, this method of hot-water supply is seriously defective. During frost the dangers are that the condensed frozen steam may form a plug in the escape-pipe of the worm, and the cold-water supplies to the worm and to the boiler may also freeze.

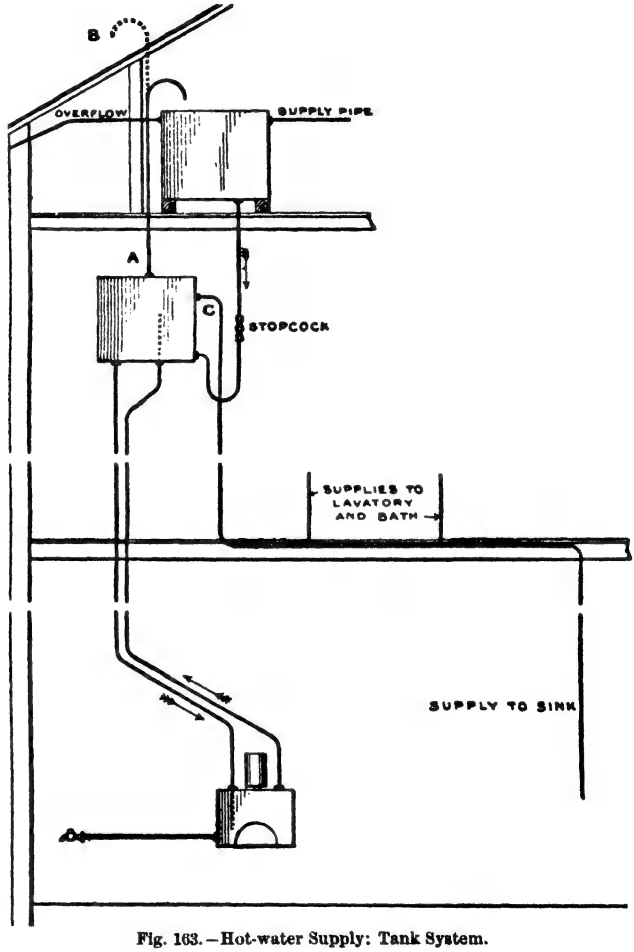


Fig. 163.—Hot-water Supply: Tank System.

Another faulty system sometimes found in small houses is also without any reservoir for hot water. The boiler behind the kitchen fire is fed from the cistern at the top of the house, the pipe from the cistern entering the boiler at the bottom, that supplying the rest of the house leaving it at the top; it is fitted with the usual hot escape. In frosty weather if both these pipes are blocked the steam cannot escape, and an explosion results. If the supply pipe alone is frozen, the boiler may become dry and red-hot, and a sudden renewal of the cold supply, as when a thaw comes, may rupture the boiler.

There are two ways of guarding against accidents of the kind: either run off all the water at night, and cut off the supply from the main—the supply must in this case be renewed before the fires are relighted; or have a safety-valve fitted to the boiler.

The two methods in general use at the present day are known as "the tank system" and "the cylinder system". The tank system in its simplest

form (fig. 163) consists of (1) a storage cistern for cold water; (2) a cold-supply pipe (controlled by a stop-cock) leading from this cistern to a closed hot-water tank, and dipped below the latter to prevent hot water passing back from the tank to the cistern; (3) a closed hot-water tank, usually of galvanized-iron, and provided with a water-tight access-cover for cleaning; (4) an expansion-pipe A rising from the top of the tank to a point a few feet higher than the level of the water in the storage cistern; (5) two circulation-pipes connected to the tank and to the boiler, one (the "flow-pipe") being taken off the top of the boiler, and being connected at the upper end to the tank at a point near the top (or at a lower level, and continued up inside the tank), and the other (the "return-pipe") being taken from the bottom of the tank, and connected to the side of the boiler near the bottom, or dipping down into it from the top; (6) a boiler, usually of wrought-iron, but sometimes of cast-iron or copper; (7) a safety-valve connected to the boiler by as short a pipe as practicable; (8) one or more branch-pipes leading from the flow-pipe to the hot-water taps; and (9) a draw-off pipe and tap (in a locked box, or fitted with a loose spanner) for emptying the apparatus for repairs or when the house is vacated. The tank is placed above the highest fitting where hot water is required, and in some houses this necessitates a great length of circulation-pipes. The principal advantage of the system is that a considerable volume of hot water is stored at a high level. The circulation-pipes are usually of wrought iron, sometimes of lead, and occasionally of copper. They must be of ample size (1 inch in diameter and upwards according to the requirements), and laid to rise all the way from the boiler to the tank, as dips and even level parts retard or stop the circulation. A dead-weight safety-valve ought to be fitted to the boiler, so that if the fire is lighted when the circulation-pipes are blocked with ice the valve will blow-off long before sufficient pressure can accumulate to burst the boiler.

In the cylinder system (fig. 164) a closed cylindrical vessel takes the place of the rectangular tank, but the general arrangement of the pipes is the same, with the exception that the hot-water branches are taken off the expansion-pipe, and not off the flow-pipe. The cylinder is fixed as near the boiler as practicable, often in a cupboard by the side of the kitchen fire. The circulation-pipes are thus reduced in length, and the water in the cylinder is rapidly heated. When water is drawn from one of the taps, hot water must pass from the top of the cylinder up the expansion pipe and along the branch-pipe, and cold water from the storage cistern must at the same time enter the cylinder at the bottom. The circulation-pipes between the boiler and the cylinder are sometimes known as the primary circulation, and a secondary circulation is obtained by returning the main branch-pipe back to a lower point on the expansion-pipe or to a point near the top of the cylinder. This is useful in the case of a long branch, as otherwise the water in the branch would soon cool down. A safety-valve on the boiler is as necessary in this system as in the tank system, and a stop-cock on the cold-supply pipe is useful in both cases, as it allows the water to be turned

off when repairs are required, or when for any other reason the apparatus must be emptied.

As the circulation-pipes in the tank system are of greater length than in the cylinder system, they are more apt to freeze, but in both systems the cold-supply pipe is usually the first to be blocked with ice. If this is the only pipe affected, there is no danger of a boiler explosion, but if the two circulation-pipes between the boiler and the cylinder are frozen, an explosion is inevitable if the fire is maintained for a sufficient length of time, unless (1) the pipes are thawed by the heated water and the fire before the pressure has accumulated to a dangerous degree, or (2) a safety-valve is in proper order on the boiler. In the tank system, if the cold-supply pipe is the only one affected, hot water can be drawn at the taps until the tank and pipes are emptied, but in a cylinder system, where the only hot branch is taken off above the cylinder, the only hot water which can be drawn under such conditions is the small quantity contained in the branch itself and in the expansion-pipe above the branch. If, however, there is a secondary return connected to the cylinder, some portion of the water in the cylinder can be drawn off, and if the secondary return is connected to the primary return below the cylinder—a mistake not infrequently made—the cylinder can be emptied. At the worst, however, a considerable portion of the water in the boiler must be boiled away before any damage can be done, and even then the damage will not be a bursting of the boiler by explosion, but a simple collapse or fracture; the escaping water may produce large volumes of steam, the effect of the fracture being the same as that produced by emptying a kettle of water on the fire. As long as there is a clear course from the boiler to the open air, there is no danger of an explosion. Under normal conditions this clear course is by way of the two circulation-pipes, the cylinder or tank, and the expansion pipe, but as this course is usually long and tortuous, a direct course is provided by the safety-valve, which is placed as near the boiler as practicable, and is loaded with metal rings which are very little more than sufficient to balance the normal pressure in the system. When from any cause the pressure is increased, a small amount of water (or of water and steam) escapes from the valve. The most important point in a hot-water system—apart from its normal working—is the safety-valve, and to

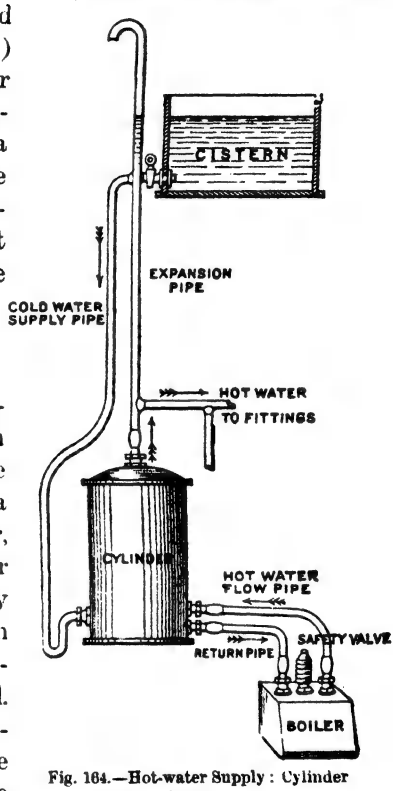


Fig. 164.—Hot-water Supply: Cylinder System.

ascertain whether this is in proper order (assuming that it is, as it ought to be, of the dead-weight type) it is merely necessary to raise one or two of the rings, when, if the valve is right, water will escape. This simple test ought to be made regularly throughout the year, as the valve itself, or the pipe on which it is fixed, may be furred up with incrustation if the water is hard.

FIRE ACCIDENTS.

Precautions against Fire.—It is an old saying that fire is a good servant but a bad master; in all circumstances therefore one should remember that in order to minimize risks the fire used for heating apartments and for other purposes must be kept within certain proportions. Further, the chimney and fireplace should be so constructed that there is no wood under the hearth or behind the grate, and that no beams of wood pass through or rest in the chimney. Before a new grate, especially one in which the fire is at or near the level of the hearth, is fixed in an old house, the old hearth ought to be taken up, as in many old buildings the hearths are slabs of stone supported on wood joists, and although they may have been a sufficient protection when (say) hob grates were in use, they may be quite otherwise when modern grates are fixed. As before stated, there should be no space at the back between grate and chimney: soot accumulates in such a space and may easily become ignited.

Special precautions must be taken in nurseries. Curtains and children's dresses may be rinsed, after washing, in alum water (proportion 2 oz. alum to 1 gallon of water); this is said to render them less likely to ignite. The nursery fireplace should be surrounded by a high wire-guard, and only safety-matches should be used, and should be kept, if possible, in metal boxes out of the reach of children. All garments requiring airing or warming before the fire must be carefully watched, and not placed too close to the bars. In making and lighting a fire, the light substances used for kindling should not be left in the grate. The habit of pouring paraffin or turpentine on badly-made fires to help them to ignite more quickly is most dangerous. It is also dangerous to put firewood on the stove to dry. Lights of any kind should not be placed near curtains, and the habit of reading in bed, with a candle or a lamp by the bed-side, is very unwise. Many people keep buckets of water on each landing to be ready at any time in case of fire. This is a wise precaution, but not always practicable where space is limited.

Extinguishing Fires.—The most speedy way of extinguishing a fire is the one generally employed, namely, to dash water on the burning mass. If curtains, valances, or hangings of any kind become ignited, they should instantly be torn down to prevent flames from rising to the upper portions of the room and furniture. If water is not available, some thick woollen material flung on the burning substance will be of great assistance, because wool does not burst into flame so readily as other fabrics, and by this means the fire can soon be stamped or crushed out. The ordinary mineral-water

syphon or seltzogene, or even a soda-water bottle, is useful for extinguishing fire, the water in them being highly charged with carbonic acid gas, which will not support combustion, and hence will instantly extinguish flame. Hand-grenades, which have a similar effect when broken, can be obtained; they are usually kept as a safeguard against fire in shops and other large establishments.

Plain water will not extinguish burning oil. Earth, ashes, or sand is the best extinguisher in such a case, but water charged with carbonic acid is equally effective and is used by fire brigades.

Chimneys on Fire.—The firing of chimneys may be prevented by the exercise of a little common care and common-sense. The flues should be swept regularly, and no soot should be allowed to accumulate near the opening of the fireplace. When a chimney is actually alight, the usual plan is to sprinkle the top of the fire with salt, as this extinguishes the fire in the grate; afterwards the soot in the chimney soon burns itself out. Other methods already indicated can be applied in this case also. Setting a chimney on fire in a town for cleaning purposes is very reprehensible, and renders the householder liable to a penalty not exceeding £5; the maximum penalty for an accident not due to neglect or carelessness is ten shillings.

Cost if Fire-Engine comes.—In the case of a serious outbreak it will be necessary to send for a fire-engine. The cost of this will depend partly on the locality, but as a rule in the case of insured property an arrangement is concluded between the owner and occupier to divide any possible expenses of the kind. Different districts vary in the amount charged, £1 for a hose carriage and an additional charge for each man, and £2 inclusive for a steam fire-engine being very usual. In London there is a special act which provides that the various insurance companies shall each pay a portion of the amount.

Fire Insurance.—It is advisable to insure all property against fire. The cost of this insurance depends on the nature of the risk and the chances of salvage, the charges being levied according to circumstances. For an ordinary dwelling-house the rate may be as low as 1*s.* 6*d.* per cent for the house, and 2*s.* per cent for the furniture, but 2*s.* 6*d.* is an average charge for a house. Pictures, &c., of special value are charged at higher rates according to their nature. But the principal insurance companies have formed a union, by means of which a regular scale of charges has been adopted. It is always safer to insure in old-established companies, as they are better able to meet large unexpected claims than the newer ones, which, in order to increase their business, sometimes offer somewhat misleading advantages. Policy conditions vary considerably, but all companies follow certain definite rules, which should be read carefully before the policy is accepted. A point to be remembered is that the insured is not supposed to benefit by a fire, and is therefore debarred from making a profit. Particulars of all variations which may be made in the fire-risks after insurance has been effected must be given to the

company without delay, such as the installation of a system of lighting by gas or electricity, or of a heating apparatus.

LIGHTING.

Methods of Lighting.—Of the artificial lights in use for domestic purposes candles are the most elementary and insignificant, oil-lamps the most economical, coal-gas the best for continued lighting and heating, electric lights the most healthy and convenient. Assuming that all methods are equally available, the average householder will choose coal-gas or electric light, and the result will justify the preference. For small country houses, where there is no public supply of coal-gas or electricity, acetylene and air-gas are often the most suitable.

Relative Cost. — The cost will depend upon the market price of petroleum and the local price of gas and electricity. Petroleum will prove the cheapest illuminant almost everywhere. Roughly, to be at all equal in cost, petroleum of 0·800 specific gravity should be had at *9d.* a gallon, coal-gas at *1s. 8d.* per 1000 cubic feet, and electricity[1] at *2d.* the Board of Trade unit. The actual cost of the two latter is considerably higher. The cost of lighting by acetylene is about the same as by coal-gas with ordinary burners, but is twice as high as by the incandescent system of lighting by coal-gas.

As to the relative consumption per light, given the most favourable circumstances, the best lamps, burners, fittings, &c., it may be taken that each light of 14 to 16 candle-power will require, in one thousand hours, 11 gallons of petroleum, or 5000 cubic feet of coal-gas, or 50 Board of Trade units of electricity.[1] The incandescent gas-light will require about 1000 cubic feet of gas for the same period, but the "mantle" will be more than half used up, and the electric incandescent lamp will also have worn out.

Lamps and Ceilings.—Of the different systems, the electric light is the cleanest, because it produces the least heat. Ceilings are discoloured by the current of heated air rising from the lamps or gas. With oil-lamps the discolouring is less noticeable, because the light is not invariably in the same place. With large lamps, the incandescent gas-light, and all gas-burners near the ceiling it is advisable to use smoke-consumers or heat-deflectors, which, if they do not prevent the accumulation of dirt, at least diffuse the currents of air and make the discoloration more general. With low ceilings and in foggy districts it is a good plan to paper or paint and varnish the ceilings, and wipe them frequently.

Accessories.—In the arrangement of the fittings wall-brackets are more effective than pendants or "crown" lights, but they should be fixed so that the "lights" are above the level of the eyes; 6 feet is

[1] That is to say, if carbon-filament lamps are used.

a good average height. The illuminating power of the lights is governed to a great extent by the colour of the walls and ceiling. The palest colours—pink, yellow, light-blue—require less illumination; a room with a white ceiling and cream-coloured walls will be as light with 33 candles as the same room would be with 87 candles if the walls were brown oak-panelling or painted maroon. To diffuse light a rectangular lantern is better than a globe, and a plane better than a cylindrical surface. A clear crystal having as many facets as a well-cut diamond is the best of all.

As to the material, clear glass obstructs about 11 per cent of the light, engraved glass from 14 to 18 per cent, ground glass 30 per cent, and plain opal 55 per cent. The special globes of transparent glass, finely grooved or chequered, absorb from 9 to 14 per cent of the light.

In arranging lights the use of mirrors and reflectors, for the purpose of economically increasing the illuminating power, should not be overlooked.

COAL-GAS.

Coal-gas is a convenient illuminant, as it requires little attention and is absolutely and continuously available. The quality and price vary according to localities and seasons, but as the cheaper "water-gas" is now more largely added, the coal-gas itself being almost always enriched with various carbons, the price is likely in future to be lowered, and the quality at least maintained. Scotch gas from cannel-coal is much richer than that obtainable in London or England generally, and may be used with smaller burners than are to be found in most English houses.

To obtain the best results it is essential that the fittings be sound. In France all pipes are submitted to a Government test before the gas is connected, but in this country the soundness of the pipes and fittings is the consumer's concern alone. As pipes, fittings, and joints, particularly soldered joints, decay owing to the chemical action of the gas, they should be tested before taking up a tenancy, and at intervals afterwards, or whenever it is suspected that a leak exists.

It is economical to turn off the gas at the meter every night, but if this is done, care should be taken that every burner has been turned off; otherwise, when the gas is turned on again, there will be not only a loss from the consequent escape greater than was likely to result from the gas having been left "on", but the risk of an explosion besides.

Leakages.—The simplest way to determine whether or not there is a leak in the fittings is to turn off every burner and watch the meter. But if the leak is a small one, it may not stir the index one point for hours. A quicker method (fig. 165) is to obtain a 12-inch length of glass tube bent into the form of a U; then fasten to one leg a short length of tight-fitting india-rubber tube, pour water into the bent tube until about 3 inches of it is filled, and slip the free end of the india-rubber tube over a burner, turning on the gas at that burner. The pressure of the gas will change the level of the water in the legs of the tube. The level should be

noted and someone sent to turn off the gas at the meter. If the same level is maintained after the gas is turned off, there is no leak.

A leak ought never to be searched for with a light. Wherever the smell of gas is noticed, it may be assumed that somewhere near there exists gas combined with atmospheric air in a proportion which renders the combination highly explosive. There is no safer way to find the leak than by the smell. If it is not in the fittings but in the pipes, the exact spot may be ascertained by mixing soap and water together as though for blowing bubbles, and painting the suspected pipe with the suds, using a camel-hair brush. Bubbles will form about the leak.

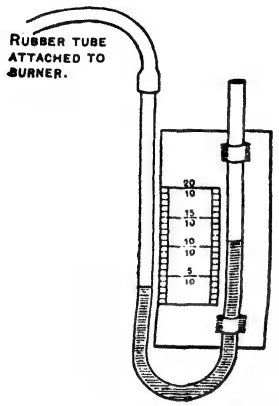


Fig. 165.—Simple Apparatus for Testing Gas-fittings.

The pressure is shown by the difference between the levels of the water in the two legs of the tube. This may be read by means of a scale (on thin card) divided into tenths of inches, attached as above. In the diagram the water in one leg stands at $\frac{4}{10}$; in the other, $\frac{1}{10}$; pressure $= \frac{4}{10} - \frac{1}{10} = \frac{3}{10}$.

To Stop a Leak.—The surest and easiest way to stop a small leak in an iron, brass, or composite pipe is to paint the pipe, preferably with oil paint containing much red-lead; but any of the varnish paints will do. Ill-fitting bracket joints can be stopped by lubricating freely with a mixture of two parts of bees'-wax to one of tallow, applied warm. A leak in the burner is of little consequence, since the escape can only be small, and ceases when the gas is turned off from the burner. It can be effectually stopped by rubbing a little white-lead, or better, a mixture of half-white and half-red lead, on the thread of the screw before turning the burner into its place. The water in the slides of pendent gasaliers requires to be renewed frequently. The cork packing of the kitchen pendant may be treated with the bees'-wax-and-tallow mixture.

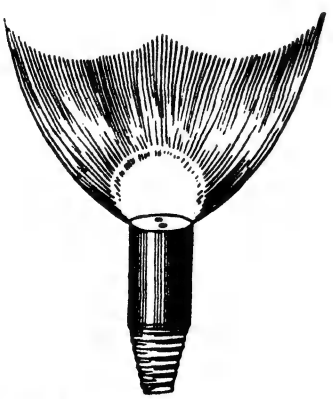


Fig. 166.—"Fish-tail" Burner. Correct shape of flame.

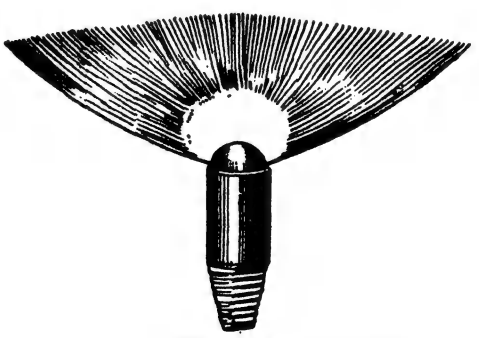


Fig. 167.—"Batswing" Burner. Correct shape of flame.

Waste of Gas.—In addition to leaks from defective pipes and fittings,

gas is often wasted by being used at too great pressure. Whenever it roars, more is passing through the burner than can be converted into light. The flame should be lowered by turning off at the burner until it assumes the correct shape, as shown in figs. 166, 167. As the pressure varies from hour to hour, being greatest from 5 p.m. until midnight, there should be, in houses where much gas is used, regulating or "governor" burners, or a governor on the main pipe near the meter, to check the supply effectively. Automatic governors are the best, as governors of the stop-cock kind, operated by hand, require adjustment several times a day to suit the varying pressure in the main and the number of lights in use in the house.

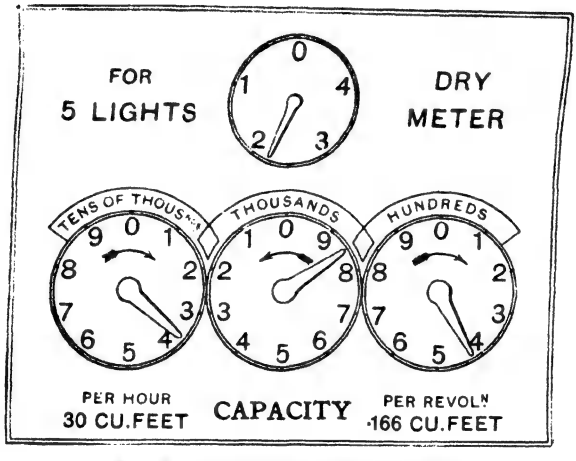


Fig. 168.—Index Dials of 5-Light Dry Meter.

The small dial above, divided into single feet, is not used in calculating the quantity of gas consumed. It is for experimental purposes, and is also useful in detecting leakage, &c. On the dial indicating "hundreds" (of cubic feet), the pointer moves to the right; on the "thousands" dial, to the left; and on the "tens of thousands" dial, to the right. The reading of the meter is obtained by adding together the amounts shown on each dial. The pointer must pass over a figure before it can be counted. Thus, in the example given, the readings are as follows:—400+8000+30,000, making a total of 38,400. Assuming a reading taken, say, three months before, to be 28,900, the amount of gas passed through the meter during that period = 38,400 - 28,900 = 9500 cu. ft.

Meters.—Gas-meters are usually lent by or are hired from the company supplying the gas. If no rent is charged for the meter, the company may be allowed to supply it; if rents are high, it is cheaper to purchase, as an efficient 5-light dry meter can be bought new for 37*s.*, and will last for years. The water-sealed meter is inferior to the dry meter, and gives much more trouble. When the meter is fixed, the stop-cock is fitted between the main supply pipe and the meter. A second stop-cock should be fitted to control the supply of gas as it issues from the meter. Stop-cocks and meter fittings are the consumer's property. It costs about ten shillings to lay on the gas, and the company "cut off" gratuitously. When taking a house from a previous tenant, it is economical, as well as convenient, to pay a few shillings for the meter fittings.

Wet and Dry Meters.—It is to the consumer's advantage that the gas should enter freely into the meter at the highest possible pressure—the

pressure in the main,—and that the supply should be checked by a stop-cock or an automatic governor on the main-pipe issuing from the meter, the ordinary stop-cock on the main to the meter being left always "full on". In the case of wet meters it is best for them to run with as little water as possible; they should not be refilled until they refuse to work, and then the water should be very sparingly added. With the water at a high level in the meter, the consumer will be charged for as much as 2 per cent more gas than is actually supplied. Houses situated at or near the top of a hill get gas at a higher pressure than those at the average level; if the house is on low ground, a meter larger than necessary for absolute requirements is to be recommended. Instructions for reading the index (fig. 168) are given on the card sent with the meter. It is a good plan to examine the index at regular intervals, and enter the figures in a diary. Any waste or excess in use is then noticed. It may be that the pipes leak, or that the meter is registering faultily. On notice to the gas company (see the meter-card for particulars) the meter will be tested for a small charge. Some meters, especially wet ones, are noisy at work; from a drone the sound increases to a whirr as light after light is lit, and in time this increases to a loud whistle. There is no cure for a whistling meter; the company will change it. In hard weather wet meters often freeze. They may be thawed by pouring boiling water into and over the meter.

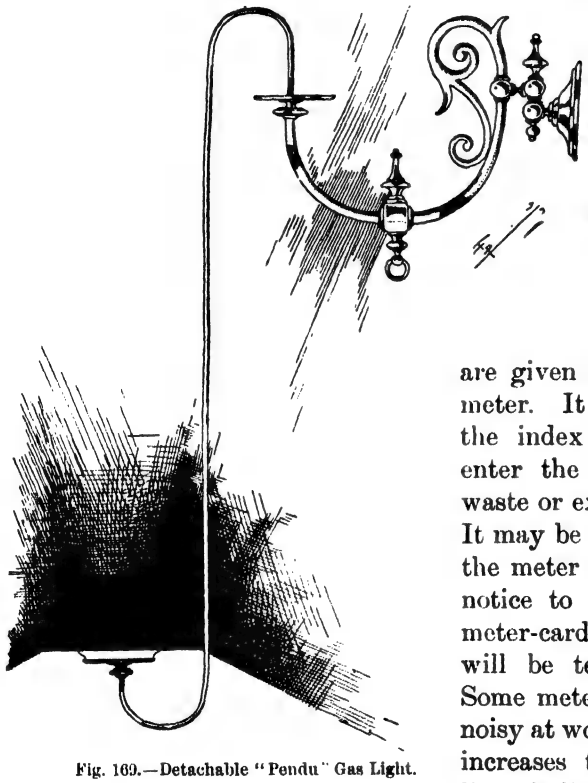


Fig. 169.—Detachable "Pendu" Gas Light.

Jumping Lights.—Water in the pipes is most often the cause of the lights jumping. Possibly the meter is at fault. The company, on receipt of notice, will send a man with the necessary apparatus to force the water from the pipes. The pipes ought to be laid with a fall to the meter, but in many cases a syphon pipe or box fitted with a small cock is required to receive the condensed moisture. The liquid can be drawn off through the cock. Any other fault in the supply of gas should be immediately notified.

Gas Fittings.—For the ordinary purposes of domestic lighting the incandescent system is preferable. The possible exceptions are lights in halls, on landings, in the kitchen, and in those situations where it is

desirable to change the position of the light frequently, or where it is exposed to draughts. These drawbacks may be overcome by using improved lamps with Clay's patent anti-vibration fittings. The increased power and smaller gas-consumption of the incandescent light make its use economical. With ordinary fittings a pendent gasalier is generally used for large rooms. If possible it should be a fixture, the lights about 6 feet or 6 feet 6 inches from the floor. To bring a light close to the table for work, a detachable "pendu" light (fig. 169) may be used. If a slide pendant is necessary, it is important that the chains to the balance-weights be examined from time to time, and replaced by new ones as soon as signs

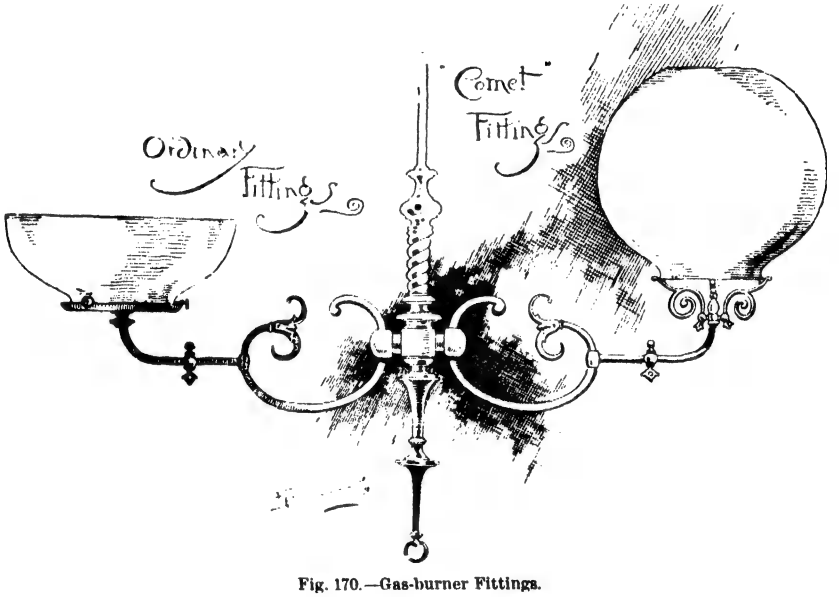


Fig. 170.—Gas-burner Fittings.

of wear are noticed. The slide should be kept full of water, the tube being filled to the brim when the gasalier is at its full height. A little glycerine added is useful in preventing evaporation.

The "Comet" pattern (fig. 170) is best for burner-fittings of ordinary type. It has no globe-ring, and the "moons" (open globes) rest securely on a tripod. This allows the glass to expand freely with the heat; hence there is less liability to fracture from turning the set-screws too tight, and, better still, the open bottom sheds more light upon the table. To cite one instance of this economy, a gasalier with the cheapest "Comet" fittings has been in constant use in three different houses for a term of over twelve years without any fracture or renewal of globe, burner, or fittings. The same consumer during the same time with a pendant gasalier of the ordinary type required new burners once, as well as four sets of globes of the usual "saucer" pattern.

In living rooms as in bedrooms bracket lights are preferable to pendants, and simple brackets to swing brackets or those with jointed arms.

The ordinary cork-slide pendant found in kitchens is both wasteful and inefficient. If bracket lights are impossible, a fixed pendant and a regulating burner, or at least a horizontal reflector attached to the pendant, is to be recommended.

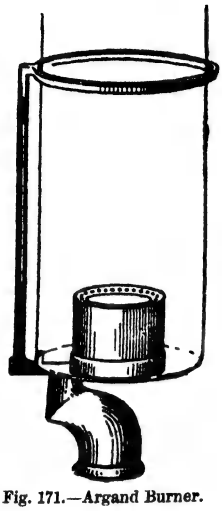


Fig. 171.—Argand Burner.

Burners.—Wenham, Argand, and other regenerative burners are not suitable for domestic purposes, and require more attention than ordinary lights. The most economical burner is that which gives the largest light with the smallest consumption of gas. In the "Argand" (fig. 171) atmospheric air is sucked into the interior of the flame by the action of the heat in the chimney. By this means the combustion is rendered complete, which is seldom the case in an ordinary burner. The disadvantage is the great heat generated.

Fig. 172.—Section of "Fish-tail" Burner.

The "batswing" burner has a simple cross slit; the fish-tail (fig. 172) is stopped with steatite, and has two pin-holes at different angles which cause the gas issuing from them to converge and form a hollow flame. These burners are all wasteful. Their sizes, numbered 5, 6, 7, &c., are supposed to indicate the number of cubic feet which they burn each hour. The quantity is

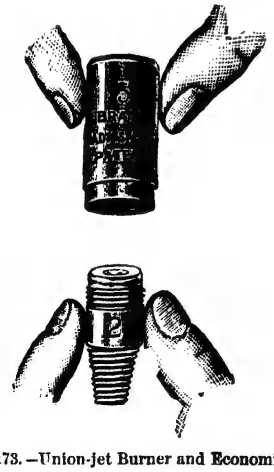


Fig. 173.—Union-jet Burner and Economizer.

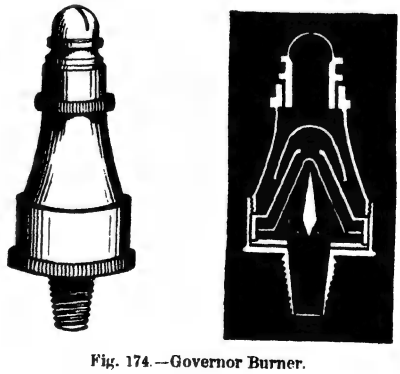


Fig. 174.—Governor Burner.

really much more, ordinarily double as much. It is better to have a large burner and regulate the flame by the stop-cock, than to have a small one burning "full". An economizer is sometimes fitted to the union-jet burner as shown in fig. 173, and increases the illuminating power from 4 to

12 times according to the pressure of the gas and the size of the burner, without increasing the consumption of gas. The economizer is simply a brass case having a slit or two holes at the top and a fine screen inside.

In upper rooms, where there is likely to be a waste of gas, a governor burner (fig. 174) is of great use. These are made in six sizes to give differently-sized flames, from a simple jet consuming 1 foot per hour to a flame equal in lighting power to 20 candles. By means of a steatite or light metal float they automatically adjust the pressure of the gas, and should be left full on or turned right off.

Incandescent Gas Burners.—The incandescent gas-light is now generally known. Its principle is the use of a "Bunsen" atmospheric burner to heat a fragile mantle compounded of the nitrates of thoria and ceria, rare earths which glow when hot, and emit a white light of dazzling brilliancy and purity. In the latest pattern a light of 15 to 20 candle-power is obtained for each cubic foot of gas consumed. The Welsbach burner is made in various sizes; the smallest, the "Gem", or "N", burner, is powerful enough for most domestic purposes, and two to five of these lights on brackets will effectively light any living room of ordinary dimensions. The "Gem" burners may also be substituted for the lights in the ordinary gasaliers, but if a central light is preferred, the single pendant, with a "C" burner (fig. 175), consuming about 4 cubic feet of gas per hour, and giving a light equal to 60 candles, should be used. Fittings for the incandescent light are now made in endless variety, including special fittings for exposed situations.

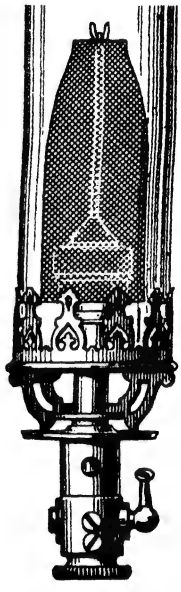


Fig. 175.—The Welsbach Incandescent "C" Burner, with Bye-pass.

The light, lacking certain colour rays, should not be used with a plain glass chimney; a rose-tinted globe of "crackled" glass is much better. Toning the light in this way is preferable to using mantles which emit a pink or yellow light.

Where the light is in daily use, the burners should be fitted with a bye-pass, which maintains a minute flame when the light is "off"; but in bedrooms and where a number of small lights are used instead of one large one, the ordinary burner is, on the whole, the more economical, as there is no difficulty in lighting from the top immediately the gas is turned on. A regulator is obtainable with the "C" burner; with the others care must be taken that the gas is not too high, otherwise the mantle is destroyed and the gas wasted. After lighting, the gas should be lowered until the best light is given. This should be done at the stop-cock on the bracket, leaving that on the burner full on.

Incandescent burners with small inverted mantles are now usually preferred in houses, as they do not cast any shadow below the light. One variety is shown in fig. 176. The fitting is screwed to the bracket

or pendant at C; air for the Bunsen flame is drawn from the open rim E, through the tubes AAA, attached to the corona F, and the mixture of heated air and gas passes down through the tube G to the burner B; the mantle is shown at H. The globe has a rim around the top, and is passed up inside the ring I, and held in position by three set-screws. A chimney is not required. This burner consumes about 2½ cubic feet of gas per hour, and gives a light equal to about 52 candles.

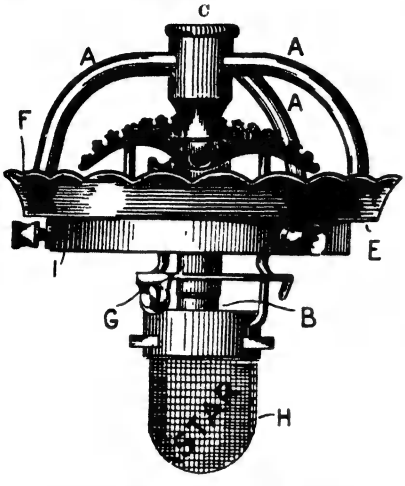


Fig. 176.—The "Star" Inverted Burner.

Mantles.—Incandescent mantles now cost only a few pence each, and are more usually destroyed through careless handling than burnt out. To put a new mantle on a burner of the upright type, the burner is removed, blown through to clear out the dust, and replaced; then the fork is put in upright, and the mantle drawn from the box by the threads and lowered, still held by the threads alone, over the burner. A little manipulation may be needed to coax the lower edge over the burner, particularly if one edge of the mantle begins to curl up inside. Some trouble here is, however, well repaid, as the mantle will last much longer if placed in position without injury. It is lowered until the cross-thread engages with the fork of the rod; the loose thread is then carefully withdrawn, the gas turned on, and the mantle "burnt off". The gas is turned off and the chimney put on, and the light is ready for use. The mantles for inverted burners are usually provided with lugs, which are supported on corresponding projections around the burner.

Useful Hints.—Great heat is generated by this light, so care must be taken that the chimneys do not fit too tightly and that they are protected from sudden changes of the atmosphere. In exposed situations it is advisable to use tall chimneys with mantle-protectors fixed over them. Dust on the mantle or in the burner is a great destroyer of light; when the chimney is removed for cleaning, the dust should be blown carefully from the mantle and burner. The jet of the "bye-pass" will clog up if it is constantly used and the gas is inferior; it should be cleaned with a fine needle. The light from the burner will diminish after about 1000 hours' burning, by shrinkage of the surface of the mantle and deterioration of the substance. Whenever the mantle becomes broken or ragged the light fails, but if the gas is turned down to about half the usual supply, a better light is often given. Looked at without a globe, the flame should not show above the top of the mantle; any red, blue, or yellow flame in the chimney above the mantle or from any hole torn in it is gas escaping to waste. A regulator for controlling the supply of air to the Bunsen flame

is fitted to some burners, especially to those of the inverted type, and affords a ready means of adjusting the supply of air to give the best light for pressure of gas available.

Pneumatic Gas-lighting Apparatus.—By means of a recent invention the gas can be turned on to one or more fittings from any convenient point (say, near the door of the room) by pressing a button or moving a switch lever, exactly in the same way as an electric light is turned on. The apparatus consists of a press-button or switch, the necessary brass tube about $\frac{1}{8}$ inch in diameter from this to the fitting, and a special valve. When the button or switch is operated, the valve is acted upon by means of the air in the tube, and the supply of gas is turned on or off as the case may be. The gas fittings must, of course, be provided with pilot lights.

LAMPS

There are many kinds of lamps; those actually in use include varieties for burning colza and other vegetable oils, spirit lamps, and the ordinary petroleum house lamps. Almost all—the most primitive as well as the latest improved pattern—produce artificial light in the same manner—that is, by the combustion of an inflammable liquid brought into contact with the air by means of a wick.

Spirit Lamps.—Among dangerous and obsolete lamps may be classed the spirit lamp. This is useful as a heater, but inefficient and dangerous as a light, especially when used with benzoline. Its use for heating purposes needs care. Reading-lamps of the "Queen" pattern, which maintain the oil at a constant level and are furnished with incombustible wicks, are satisfactory if properly attended to, but the care of them should not be left to servants.

Colza Lamps.—The colza-oil lamp is now little used; it is expensive, and inferior to the best petroleum lamps.

Petroleum Lamps.—The first requisite in a petroleum lamp is safety. Luckily this point has been so much insisted upon of late years that nearly all the better quality lamps now made may be regarded as safe, provided ordinary care be observed in using them. Cheap lamps still leave much to be desired, and must not be purchased at random. Metal oil reservoirs are less liable to break than others. Glass reservoirs are sometimes chosen for their appearance. They have two advantages; they are not so liable to heat as metal, and the amount of oil in them can be seen. Small lamps, particularly hand-lamps, should be of metal.

Precautions.—Lamp explosions are due to the firing of the flame of vapour arising from the oil in the reservoir. The heat of the flame causes oils having a low flash-point to give off an inflammable gas; as long as this gas is contained in the reservoir with the oil no explosion will result, unless the flame, a spark, or a smouldering fragment of wick reaches the gas. To prevent this, the wick tube is continued well down into the oil; and the wick should fit the tube exactly. Oil on the reservoir will

be converted into gas in certain circumstances, and this gas ascending to the flame may be fired and the explosion outside communicated to the gas inside the reservoir, but more probably it will merely burn in the chimney.

As the gas generated by the heat always accumulates in the reservoir, each lamp should be refilled every time it is used, in order that the oil may expel the gas. Opinion is divided as to the advantage of a separate opening into the reservoir for refilling. There is no doubt that it is convenient, and helps cleanliness; it also prevents a lamp's being filled right up to the burner, and, if properly stoppered, it is not really dangerous.

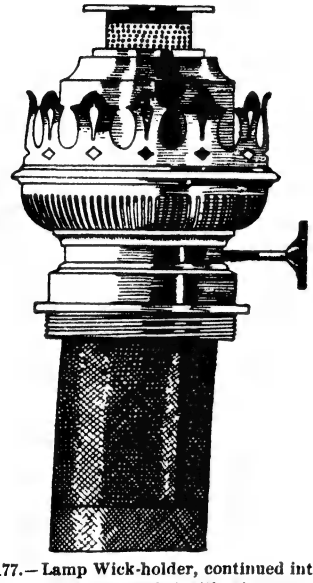


Fig. 177.—Lamp Wick-holder, continued into reservoir, and surrounded with wire-gauze.

Fig. 178.—Lamp Burner, for two wicks.

Choice of Lamps.—For perfect safety the wick-holder, besides being continued well down into the reservoir, should be surrounded by fine wire-gauze (fig. 177), such as is used in miners' safety-lamps. There should be a proper extinguisher, and the lamp should have a heavy base broader than the diameter of the oil reservoir. A shallow, wide reservoir is better than a narrow deep one.

The illuminating power of the lamp depends upon the burner, and for economical purposes it is necessary, firstly, that the right proportion of atmospheric air should reach the burner at the point of combustion; secondly, that the oil at the point of ignition should be of the right temperature. No two tests give identical results, but with exceptionally good conditions 41 grains of oil will be consumed in an hour for each candle-power, whereas common lamps will consume upwards of 70 grains to generate the same light.

To obtain the supply of air a draught is caused by affixing a chimney; there are also chimneyless lamps supplying the air by independent mechan-

ism, as in the Belgian "Ardent" lamps and stoves and cookers, which are among the best in the market, giving out an enormous amount of light and heat.

One of the best-known burners is the "Duplex", dating from 1869. To get more light two wicks, giving two distinct flat flames (fig. 178), have been used with success, but later Sepulchre's patent of 1881 showed the way to the use of a circular wick with an inside air-draught and complete combustion (fig. 179). The "Ardent" just mentioned is an example. An advantage of these lamps is that they burn heavy-bodied oils, thus reducing the risk of explosion. Ordinary lamps of this kind can be made to give 25 to 35 candle-power, and hanging lamps for large rooms (fig. 180) as

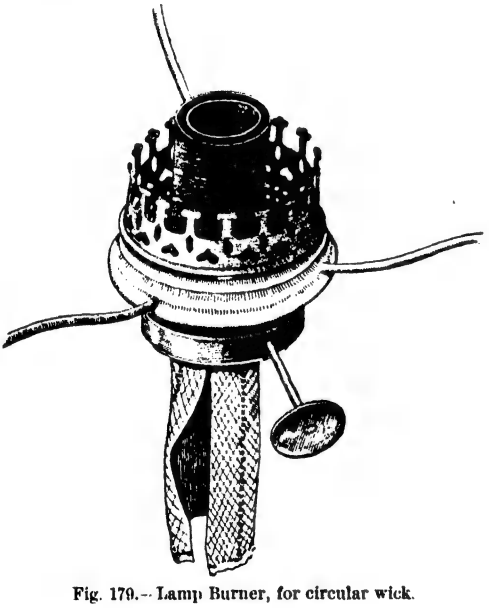


Fig. 179.—Lamp Burner, for circular wick.

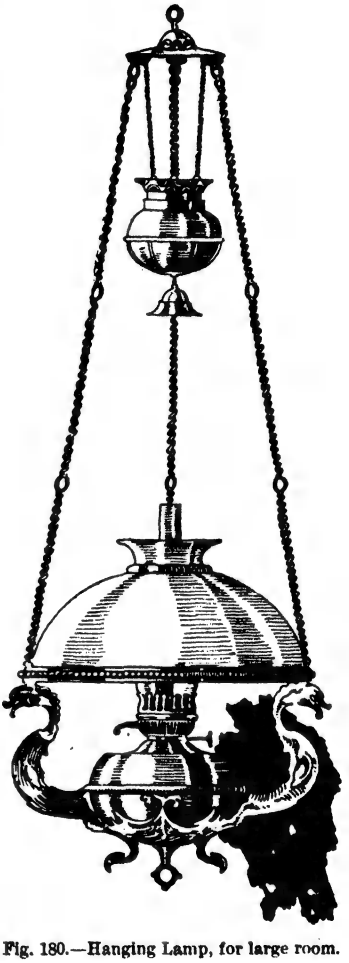


Fig. 180.—Hanging Lamp, for large room.

much as 100 candle-power. They are more susceptible to draughts than ordinary lamps, but with average care give a fine steady light, and burn for ten hours without requiring attention. They are invaluable in the sick-room for this reason.

There is little to be gained by having lamps with hinged chimney rings; it is almost as easy to remove the chimney for lighting, and the ordinary fastening secures the chimney better.

Hand lamps with metal reservoirs—copper looks and wears well—are very cheap, and, with properly fitted wicks, are safe. A hurricane lantern is useful almost anywhere, and for the hall a lantern from the ceiling is

as safe as a bracket lamp; the latter is useful on landings and in passages. Care should be taken that all have single burners screwing into the reservoir.

Lamps on ring-brackets from the wall, and good pillar lamps, are best for the drawing-room. Floor lamps, although undoubtedly beautiful, lack stability, especially when made with adjustable extension and fitted with a heavy fringed shade.

A capital reading-lamp, adjustable to various heights, on a standard with a triple-claw base, obtainable in various sizes and patterns, is to be recommended.

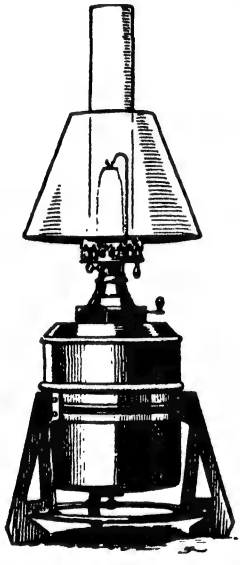


Fig. 181.—Petrolite Lamp, with Incandescent Mantle.

A new type of lamp, known as the "Petrolite" (fig. 181), has a reservoir containing an absorbent block of Kieselguhr and plaster of Paris. The block is saturated with petrol, and the vapour from this is consumed in a Bunsen burner, a steady and powerful light being obtained from an incandescent mantle, in the same way as in the most modern method of lighting by coal-gas. If a lamp is overturned, the light is at once extinguished, and as there is no free liquid in the reservoir, the danger arising from the spilling of inflammable oil is entirely prevented.

Care of Lamps.—Wicks should be cleaned and fitted and lamps refilled by daylight. Wicks should be soft, plaited—not woven—quite dry, and fitting the holder exactly. To make them burn without smoking, they may be soaked in strong vinegar, and then thoroughly dried before use. The wicks should be long enough to reach to the bottom of the reservoir, but not long enough for the ends to turn up. Care should be taken that the wick is thoroughly saturated with oil before the lamp is lit. To fill the reservoir a can with a long thin spout should be used. The reservoir should be filled every time the lamp is used, and after use the lamp should be thoroughly cleaned and made ready for the next occasion on which it may be required.

For trimming the wick it is best to use proper lamp scissors, having a snuffer-like attachment to retain the charred wick cut off. To ensure a regular flame, cut to the shape of the dome over the burner; a circular wick should be absolutely flat. Care should be taken to wipe away all oil, dirt, and bits of wick, and to let the outside of the lamp reservoir dry thoroughly before lighting. The wick should be turned down a little after lighting, and then slowly raised. Whenever it will not reach the bottom of the reservoir a new one should be supplied. Rubbing the top of the wick with pumice-stone ensures its evenness.

Dirt should be removed from chimneys with a dry cloth, or with a brush, such as is sold for the purpose. Should it be necessary to use moisture, the chimney should be wiped with a felt cleaner or soft cloth, and be thoroughly dry before being used.

If a lamp smokes, the wick is either too high or unevenly cut. Smoke proves the supply of air to the burner to be insufficient or unequally distributed; this may arise from the open work below the burner being clogged with dust and dirt.

When carried alight, the lamp should be held on one side of the body, so that the light may be on a level with the bearer's shoulder, the wick having previously been turned down. It will then be possible to see clearly ahead, avoid obstacles, and get clear of the lamp if it should happen to break.

Lamp Accidents.—Explosions are easily prevented; but with proper oil and well-made fittings, if the oil-reservoir is broken the oil will not explode, and, in most cases, will not even take fire. A dry cotton cloth, if nothing better is at hand, thrown down over the burning wick will at once extinguish it. Some lamps are so made that, if they are turned over, the extinguishers act automatically; and these extinguishers, adaptable to any lamp, may be purchased for one penny. If from any cause—as the use of inferior oil, ill-fitting wicks, dirty burners, or worn-out wicks—the flame descends into the wick-tube and reaches the oil-reservoir, a great volume of smoke and flame will shoot up towards the ceiling, bursting the chimney, and perhaps the globe too. The flame should be smothered at once by throwing over the lamp any woollen cloth at hand, the globe being broken if necessary in order to get the cloth close over the flame. The flame is easily smothered if this is done at once. Sand is the best extinguisher for oil alight.

In any case water must not be used to put out burning petroleum.

Lamp Oil.—It is difficult for any but experts to decide as to the quality of lamp oil except by the lamp's burning. A good safe oil of 0·800 specific gravity can be obtained almost anywhere. The flash-point of heavy-bodied expensive oils will be found well over the Government minimum. It is the cheap American oil that fails in this respect. The best petroleum is almost as clear as water, but when seen in bulk or held up to the light in a transparent vessel has a bluish tint. A brown tint indicates an inferior oil.

The cheapest way to buy oil is in metal drums fitted with key taps. Oil by the barrel may be cheaper per gallon, but the barrel seldom contains as much as it is supposed to do; not unfrequently taps leak, and, unless carefully stored away under lock and key, the oil is apt to be used extravagantly. The filling-can should be kept in the outhouse with the oil. If an ordinary oil-can is used, and the supply is taken regularly at frequent intervals, the can should be furnished with a screw stopper, not the common cork one.

The oil should be stored where least likely to come into contact with fire, but it is equally important that the barrel or drum be placed in a good light, so that the can may be filled without risk of overflowing. A tin to catch the drops running from the tap after use should be employed; the oil so collected will serve for lubricating, and the odd jobs for which a few drops of petroleum are found so useful.

Illumination.—Extra light for special occasions may be supplied by candles placed before mirrors, fairy lamps, and night-lights in "Vauxhall" lamps. Fairy lamps in any colour cost from one to two shillings each, according to size, and are useful in lighting passages where it is convenient to have some light all night. Vauxhall lamps cost 1*s.* 6*d.* a dozen; candles, to burn four hours, a halfpenny each: these and "fairy" lamps are very effective in conservatories, and less dangerous than the Chinese lanterns employed for like purposes.

ELECTRICITY

It is generally admitted that the electric light is the best artificial illuminant. Its one disadvantage is its cost. This varies, more nearly approaching that of gas when, as with gas, the supply is taken from the mains of a company, and being most expensive when the current has to be produced by the consumer.

Fitting Up.—The plant necessary for lighting a house comprises an engine, a dynamo to generate the current, and batteries to store it and provide a reserve. When water is available for motive power, the first cost of installing a plant may be very high, but the working expenses will be less than with any other kind of motive power, such as an oil, gas, or steam engine. In any case the cost of installing and working a small plant renders it inadvisable to generate electricity privately for a small country house. For little extra cost a much larger installation can be made and maintained. In mansions where 250 or more lights are fixed, the current will cost probably not more than sixpence per Board of Trade unit, and this is higher than the price ordinarily charged by the supply companies. These remarks apply to installations in which the current is supplied at the ordinary voltage of about 100, but a lamp has recently been introduced which gives an excellent light at the low voltage of 25. By using this lamp the amount of current required is reduced nearly 75 per cent, and the cost of the generating plant is therefore much less, the working expenses also being reduced.

In town and suburban houses, where electric mains are available, the first cost is only that of wiring the premises and providing the fittings. In some parts of Great Britain, especially in towns, the electric-light companies put in all the necessary fixtures—wires, switches, fuse-boxes, and fittings other than lamps and holders,—and charge the consumer a yearly rent for their use in addition to the payment for the current used. If the consumer has to fix these necessaries at his own cost, the expense will be from 20*s.* to 30*s.* a light for from ten to twenty lamps. In a new building the cost of wiring (including fuse-boards, switches, &c., but exclusive of lamps and lamp-fittings) varies from about 15*s.* to 25*s.* a point, according to the quality of the work and the length of the runs. The cheapest method is to run the wires in wood casing, but the casing is unsightly. When the wires are buried in plaster, some kind of metal

tubing is necessary to preserve the wires from injury by nails, moisture, &c. The cheapest kind is the Simplex steel tubing with slip-socket joints, but better protection is obtained by using a stronger tubing with screwed joints. This is the best and also the most expensive method of wiring. In cheap work the wires are threaded into the tubes before these are fixed, but this is a faulty method, as repairs and alterations cannot easily be effected. In the best work, inspection tees, bends, &c., are fixed where necessary in the tubing, and through these the wires are drawn in afterwards. The holders, brackets, pendants, and removable fittings are not much more costly than those for gas, quality for quality, and may be obtained in many elaborate and artistic styles. The ordinary incandescent lamps, with carbon filaments, cost about 1*s.* or 1*s.* 2*d.* each, if of 8, 16, or 25 candle-power, and one penny more if of 32 candle-power. Lamps on the incandescent principle are made in sizes of 5, 8, 16, 25, 32, 50, and 100 candle-power, so that there is no need to use the more troublesome arc lights for domestic purposes. The ordinary lamps burn for about 800 hours; there are also many "high efficiency" lamps which use less current per candle-power, but have a shorter life—about 400 to 500 hours only.

Lamps with metallic filaments, such as the "Tantalum" and "Osram" lamps, are now coming into general use where a high degree of illumination is required. The Tantalum lamp is not made for voltages over 125, and where the current is supplied at a higher voltage two or more lamps must be connected in series. This is a disadvantage in house-lighting. The Osram lamp can be obtained for voltages up to 260. The earlier forms had a rather fragile filament, and had to be fixed in a vertical position, free from vibration, but angle patterns have now been placed on the market. The Osram and Tantalum lamps cost about three times as much as the carbon-filament lamp, and have a rather shorter life, but the globes do not blacken, and the current consumed per candle is less than half that required by a carbon-filament lamp. It has been estimated that the ordinary lamp is more expensive than the others for the same degree of illumination, when the price of the current exceeds 2*d.* per unit. Two 25-candle-power Tantalum lamps in series on a high voltage consume the same current as one ordinary 16-candle-power lamp on the same voltage.

The principal economies the householder can practise in respect of electric lighting consist in preventing waste. Suitable lamps for the voltage supplied should be chosen, and lamps of 8 candle-power used in the small rooms and passages; it is also better to have an extra lamp which can be attached to a wall-plug to supplement the ordinary chamber lights than to use one light of great power. Care, of course, must be taken to switch off all lights immediately they are not needed. There is not likely to be any loss from leakage if the wiring has been well done, and there is now little if any danger from fire, provided that the fittings comprise, as they should, a fuse-box to cut off the current if received at too great pressure.

Electric Measurement.—In measuring electricity the quantity of current is reckoned in ampères, and the unit of pressure is the volt; the product of an ampère multiplied by a volt is called a watt. One thousand watts make one Board of Trade unit; therefore, 10 ampères at a pressure of 100 volts, or 5 ampères at a pressure of 200 volts, alike constitute 1 unit, according to which measure the current is sold by the supply companies to consumers. The current is usually supplied for household purposes at a pressure of 100 volts, at which pressure a lamp of 16 candle-power requires 6 ampères of current to light it. The electric meters used must be of the type and quality approved by the Board of Trade, and should record within one per cent the actual current passed.

Cost from the Main.—At Edinburgh the price to consumers is from 3*d.* to 4*d.* the unit for lighting, and from 1½*d.* to 2*d.* for heating. In London the average price is 4*d.* to 5*d.* the unit for lighting, and usually 1*d.* per unit for heating and power. Sometimes the price is varied, the maximum being charged for night use and the minimum during the day; this applies chiefly to the lighting of basements for business purposes. By the "demand indicator" plan the maximum amount of current used at any one time is registered; the consumer is charged for the current at the maximum rate per unit until the account payable equals that required for his "demand" quantity for the half-year, after which all electricity in excess is charged at a lower rate, sometimes not more than one-third or one-fourth of the maximum. This plan is based upon the assumption that consumers ought to pay more in the evening for the convenience of having a practically unlimited supply for, say, two hours, to all lamps at a time when the call upon the generating station is heaviest. Some companies allow the consumer to choose between the maximum-demand system of payment and the "flat rate" system, but it is usually to the consumer's interest to select the latter, and it certainly saves a good deal of trouble.

Each ordinary lamp of 8 candle-power will require about 16·8 units a year, the average time of burning being reckoned at 600 hours in the year, and so will cost 7*s.* at 5*d.* the unit. To light an eleven-roomed house 176 candle-power is ample, and the bill for current consumed should be about £7, 14*s.*, or about 5*d.* a day for the electric current alone, if ordinary lamps are used. In a house containing ten ordinary lamps of 16 candle-power and twenty-five of 8 candle-power—a fair average—probably seven of the larger and fourteen of the smaller would be alight at least 600 hours in each year, and the remaining lamps, as in bedrooms, bathrooms, about 400 hours; they would then consume 660 units, which at 5*d.* the unit amounts to £13, 15*s.* By using metallic-filament lamps (such as the Tantalum and Osram) in the principal rooms the bill for current can be reduced 20 per cent or more.

A greater saving can be effected by transforming the current down to 50 or 25 volts, but this is at present practicable only when the alternating-current system of supply is adopted by the company. The cost of a transformer suitable for a large mansion is only £10 or £12, including the fixing,

and by installing this and providing the new 25-volt Osram lamps for all fittings, the current consumed will be reduced at least 50 and possibly 75 per cent. These lamps are made to give 10 or 16 candle-power with either 25 or 50 volts.

ACETYLENE.

The gas which results when calcium carbide is brought into contact with water burns freely, giving a brilliant pale-yellow light. Its manufacture is so simple that it is now extensively used as an illuminant in country houses, where coal-gas and electricity are not available. It is less poisonous than coal-gas, but more explosive. Its explosive quality exists even when the proportions are one part of gas to twenty of air. For safety it should be used at little more than atmospheric pressure. Its light is bright, and it burns steadily, the small size of the flame causing it to cast sharp shadows.

The claim made for it that it costs less than other illuminants, coal-gas for instance, has not been substantiated. At present its cost is about equal to that of coal-gas purchased at 2*s.* 6*d.* per 1000 cubic feet.

The cost of the plant for making and storing acetylene gas in quantity equal to that passed by an ordinary ten-light meter is only about £20, and as the apparatus occupies very little space, it can be placed in an outhouse about 6 ft. square.

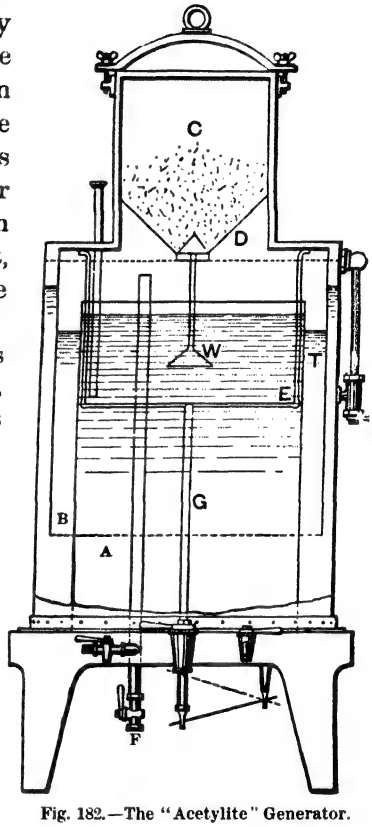


Fig. 182.—The "Acetylite" Generator.

A, Inner tank; B, gas-bell; C, hopper for carbide; D, valve with weight W; E, perforated tray; F, gas outlet pipe; G, raising rod; T, water-seal.

The form of generator in which calcium carbide is passed automatically into water, as in the generator shown in fig. 182, is better than that in which water is supplied as required to a mass of calcium. The excess of water in the former keeps down the heat arising from the chemical change, and although a larger quantity of lime is formed, this residuum soon settles at the bottom of the tank and can be easily withdrawn by a waste tap. Such a generator requires little attention; an occasional addition to the water, and a periodical drawing off of the lime, are all that is necessary beyond keeping the feeder supplied with carbide. A carbide which will not produce 4·66 cubic feet of acetylene per pound should be rejected, or purchased at a price according to the actual amount of gas yielded by it.

Calcium carbide is usually delivered in hermetically-sealed cans in

quantities up to 100 lbs. To be safe, it must be pure. Care must be taken to keep the generator supplied constantly; when the tank is exhausted, there is a possibility that atmospheric air will be admitted and an explosive gas produced. The generator must be adequately protected from frost. The carbide should be stored in a dry place, and every care taken that naked or other lights are not carried near the generator or the building in which it is placed.

Fig. 183.—Burner for Acetylene.

Pipes must be laid from the generator to the various fittings in the same way as for lighting by coal-gas, but smaller pipes may be used, and the greatest care must be taken to prevent leakage. Special burners are required. Among the best are those with two small holes arranged as shown in fig. 183, so that two jets of light impinge against each other. These burners are designed to prevent the overheating and carbonizing at the point of ignition, which was so common a defect in the early acetylene burners.

Acetylene lamps and lanterns are in common use for motors, bicycles, and carriages, and for similar purposes. As at present made they cannot be recommended for use indoors. Insurance companies regard them with suspicion. In all cases, whether lamps are used or the gas is produced in a generator, the consent of the company insuring against fire risks should be obtained and the policy endorsed.

AIR GAS.

Air-gas is another illuminant which is well adapted for country houses. It is obtained by the carburation of air with gasoline, petrol, or other light hydrocarbon oils, in a special apparatus. The cost of the gas is rather higher than that of acetylene. Flat-flame burners can be used, but the incandescent system is more economical. This apparatus occupies little space. A small amount of motive power is required, and in some cases this is obtained by means of a very small hot-air engine, in others by means of a winch and weight, wound up by hand about once a day. The latter is on the whole the better method.

THE ENGAGEMENT OF SERVANTS.

Domestic or household service is both ancient and honourable. At an early period of English history many, if not most, high-born ladies at some time or other, for health, education, convenience, or protection, took refuge in convents; but when they were not under Church protection, it was found convenient to give them profitable occupation, and social chances as well, by settling them as attendants upon prosperous relations or well-to-do people. Indeed, members of almost every rank found their vocation in domestic service; they were treated as social equals, but they had to do the household work. The boys, when not wanted for war or the Church, went out as pages; the girls, when not suited at home or devoted to religious life, went out to service. "Service" was then, indeed, a comfortable and honourable word. The lover did his mistress "service"; the soldier and the courtier gave liege service to his Prince; the priest served Holy Mother Church. The old flavour of the word has survived in such well-known phrases as "Love and Serve", "the United Services", the Prince of Wales' motto "Ich Dien", "I serve", "the Church Service", "the service of the Highest", and "whose service is perfect freedom". Service was certainly honourable amongst all men in those days.

The advantages, too, of keeping the money in the family, of getting girls out in the world under good protection, and of giving them variety, amusement, and occupation, were obvious. Four hundred, even two hundred years ago we see the thing in full swing in the "Paston Letters" and "Pepys' Diary". The Paston girls, it is true, were troublesome and difficult to marry, and were often recalled and replaced. Pepys' sister, who waited on Mrs. Pepys, was also troublesome, but her status was well defined—there was nothing undignified about it. The causes which led to the practical suppression of domestic service as a sphere for well-born women, princesses and noble youths not disdaining the vocation, have never been clearly traced. Of course "the girl" who did very common, rough work, or the charwoman proper, has always existed, just as the farm "hand" has always existed; but real ladies served at table, carved the joints or poultry, made the beds, swept carpets, cleaned up, cooked, spun, made all the clothes, and were in personal attendance like the housemaids, parlourmaids, and cooks of to-day. Just as before the days of standing armies every man was or might be a soldier, so, before the days of the distinct servant class, everyone was or might be a domestic servant. The dislike of domestic service is a consequence of the wider education given

to the children of the working classes. It engenders a wish for independence and a not always unworthy desire to rise in the social scale. This is a force to be reckoned with, and those employers are most successful who make allowance for the new spirit. The autocratic mistress, whose rule is a rod of iron, will often be without servants, while the gentle lady who understands and forgives will always have a choice of many.

The popularity of black servants last century, and the Anglo-Indian's estimation of what was called "nigger service", may have had something to do with bringing domestic service of all kinds into contempt; but the number of ladies who are now willing to do domestic servants' work, under cover of being sisters of mercy and professional sick-nurses, is a sign of a healthy reaction, though the attempt to revive the wholesome and simple ways of the Pepys and the Paston times, in the shape of lady helps, has not so far been a success. In America it is notorious that no free citizen, however much jockeyed by his government and the police, would willingly undertake what he calls menial service. Bygone American slavery is undoubtedly responsible for this; but so great is the demand now for decent servants across the water, that Americans on their travels often engage English, Swiss, and French girls to take back with them to the States. Already there are signs of a healthier tone about service "over there".

The increasing difficulty of getting good servants in England has led to an importation of Swiss, German, and Belgian maids, who give themselves no airs, and work hard; but the experiment is not always successful. It is also doubtful whether we should gain much by adopting the Continental hire system. Abroad it is *de rigueur* for a servant to produce her police book, which professes to give the employer a bird's-eye view of her past history. Each cycle of service or change is drawn up and signed by the police from information supposed to have been derived from the employer, but the system is so liable to abuse and falsification of character that it is far less trustworthy than our own rough-and-ready method of personal inquiry. The police habitually refuse to endorse anything very unfavourable, on the ground that it deprives the servant of the "means of living", a form of charity which also deprives the employer of the means of knowing the sort of person who seeks entrance into his house.

METHODS OF OBTAINING SERVANTS.

In Britain there are five chief ways of engaging servants: (1) On the recommendation of friends, (2) from country sources, (3) from registry offices, (4) from charitable institutions, and (5) by advertising in the newspapers.

Friends' Recommendation.—When servants are obtained from friends with whom they either are or have been in service, care must be taken to ascertain the true grounds of notice or dismissal; and any reasonable

suspicion that the servant is being or has been parted with on grounds not disclosed must, of course, be allowed due weight.

Country Sources.—In the case of those applying for situations from the country, the clergyman of the parish or a district visitor may be consulted with some advantage, as it is thus more easy to ascertain their antecedents.

Registry Offices.—With regard to registry offices it must not be forgotten that they depend for their existence principally upon their popularity with servants, whose interests are therefore necessarily considered first. Under such circumstances, great care should be taken in sifting references. The registry office is not an employer but a distributor of labour, and it lives by what it distributes. Servants, knowing this, are apt to presume upon the fact that a mistress's subsequent strictures will carry small weight with the offices interested in recommending them. Nevertheless, many are disinclined to use these establishments. Good, steady, old-fashioned servants can place themselves, and keep in place, without such aid.

It is said that servants have been bribed, flattered, and threatened out of perfectly suitable situations because another fee was wanted. Of course, certain respectable offices have sought to close the various avenues to fraud, and while doing so have defined more clearly the limits and rights of employers and employés; but the system is not in itself a good one, and much remains to be done before the registry office can be relied on to supply really good servants, and in any case prepayment of fees is a mistake.

Charitable Institutions.—A word may here be said with regard to those various institutions of a charitable nature which undertake to plant out girls, such as workhouses, charity schools, Dr. Barnardo's Homes, and the like. The workhouse product should be taken with great caution, as early surroundings and hereditary tendencies are likely to affect both the physical and moral integrity of the candidate for service. The Marylebone charity schools and institutions of that class turn out very respectable, but seldom very alert or clever, servants; their experience of life has been very limited, and the cultivation of their faculties groovy. But some employers, who are willing to spend time and trouble in training their own servants, might consider these limitations rather an advantage. Dr. Barnardo's homes send out excellent cooks, laundresses, and general maids, and the inmates, as a rule, bear an excellent character for honesty and industry, though they are sometimes a little rough at first.

In dealing with such institutions, it may save trouble to obtain and study the conditions under which their inmates are to be hired, as the restrictions may be such as the employer may be unwilling or unable to submit to.

Advertisements in the Newspapers.—In advertising for servants employers should be careful to assure themselves that the journal selected reaches the class for which the advertisement is intended. To guard against the well-known and apparently increasing practice on the part of persons

not trained in domestic service at all, but merely impostors, of applying for situations simply as a means of extortion, the exact requirements should be mentioned, and also the fact that, in case of non-engagement, no fares will be paid. "No beer" is also an advisable addition. There are, in fact, obvious advantages in "no extras" of any kind; everything should be included in the fixed salary agreed upon. A statement to this effect in the advertisement will be found to save much trouble.

Many ladies find it useless to answer servants' advertisements, and much time and money are wasted by eager employers coming up from the country in hot haste for the purpose of interviewing the advertisers. The advertisement is usually very brief; nothing can really be gathered from it. In nine cases out of ten it is inserted by a registry office, for very few servants care to spend their money in this way. Announcements in which a supposed lady of title recommends her maid, or a gentleman or nobleman his coachman or butler, should also be treated with great caution. They may be, but are frequently not, genuine. The semi-confidential terms on which experienced and clever servants often get with their employers, the family secrets they come to know of, the desirableness of parting without offence when strained relations might involve unpleasant revelations, too frequently deprive these advertisements of a *bonâ fide* character. Of course, some are perfectly honest; no rule can be laid down; but employers who engage servants so recommended may as well do it with their eyes open.

SERVANTS' CHARACTERS.

Interviews with Servants.—A personal interview, to be satisfactory, requires that both parties should have their wits about them. The employer should be vigilant rather than suspicious, and sympathetic rather than exacting. An impartial but kindly and attentive attitude will best disarm duplicity and favour mutual confidence.

Observe the way the candidate enters, if shy and nervous or sly and evasive, if boisterous and disrespectful (though too much importance should not be attached to a little brusqueness), if shifty and hesitating, though here also the possibility that bashfulness or excitement may be the cause should be taken into consideration. If an applicant demands a piano, a bicycle, or a sofa, or the cast-off wearing apparel, have nothing to do with her; some of these things might be given, but must not be claimed, and one exaction leads to another. "Bounce" of demeanour will not augur well for the adjustment of personal relations; but a certain freshness, decision, and natural independence often found in girls from the country does not always mean impudence or a tendency to insubordination. In a cook one does not as a rule look for the same nattiness of dress and style as in a lady's-maid or a parlourmaid, but a downright sloven proclaims herself in many ways, and is to be avoided, particularly in the kitchen, for both

sanitary and æsthetic reasons. Loose hair-pins, tawdry, untidy hats, ragged fringes, cuffs pinned instead of buttoned, and peculiarly untidy boots, bad gloves, and soiled ribbons, all proclaim undesirable mental peculiarities and habits.

The first inquiries should be about health, so as to make sure that the servant is physically capable. The round of duties and the hours of work and rest must be to some extent explained. One need not be surprised if, however pale and sickly-looking, the applicant declares that she has never known a day's illness, and that although she has been out of place for a year, it was to nurse a sick mother or for some other specious reason. That a young woman who has to support herself has been out of place not infrequently points to a less reputable cause, but each case must, of course, stand on its own merits.

Observe whether the applicant holds herself easily and upright, whether she stands on one leg, or first on one then on the other; this attitude usually points to internal unsoundness which will militate against normal and cheerful activity. If possible find out whether she has been troubled with housemaid's knee, a mysterious complaint likely to recur, and generally a great hindrance to the thorough sweeping of floors and cleaning of hearth-stones.

So much is involved in engaging a servant—not only the general comfort of the establishment, of which each servant is a pillar, but the actual safety of every object in it—that far more care ought to be exercised than commonly is to ensure the servant's "settling", and the small but important points concerning which inquiry is suggested, together with absolute good faith between the parties, support the whole structure of domestic service.

When a girl "goes out", it is either because her parents cannot afford to keep her and therefore she must keep herself, or else because she is of an unsettled character and likes change and variety, which are more easily obtained by her "in service" than at home, where affection itself becomes monotonous and adverse to natural development. It is a mistake, therefore, to regard the servant class as making any peculiar sacrifice, or to pet and worship and squabble with them by turns. There is a mutual give and take; a very handsome recompense—food, lodging, personal security, and money too—is offered for certain duties which are an equivalent, and this equivalent must be supplied by the servant, not as a favour but as an obligation. When the duties and responsibilities have been agreed on, the parties must defend their own rights and insist on obtaining what is due. In this there is no tyranny. Domestic service is a business like any other, honourable, comfortable, and exceedingly useful, but unpopular through the inability of mistresses to "keep house" methodically, and of servants to submit to reasonable control.

Interviews between Employers.—The character of the employer will often indicate that of the servant. It is advisable to select servants who have been employed by somebody in one's own rank of life. It is not

difficult to gather from the demeanour of the mistress whether she is careful to give fair and explicit information, especially as to honesty, sobriety, cleanliness, and general diligence and efficiency. As a rule it is unwise for gentlefolk to engage servants from keepers of lodging-houses or hotels, or from small trades-people; each branch of domestic service has its own standards and its own finish or absence of finish. Be careful to ascertain if possible exactly why the servant has left her previous place, and notice especially evasive answers or points omitted; it is a common way out of a difficulty to dwell profusely on the many good qualities of a servant, and under cover of the general eulogium the really important defects get overlooked or escape mention. These defects may or may not be such as a mistress feels able to put up with, but that is a point which each must decide for herself. Anything appertaining to extravagance or parsimony should be marked. A servant unaccustomed to economy will not easily settle in what is called a "plain place", but, of course, some of the very best servants have no idea of economy, and these must seek for employers who live on a more liberal scale. It frequently happens that ladies of wealth and rank have so little intercourse with any of their own servants, except their lady's-maids, that it is next to useless to take characters directly from them; the housekeeper is then the person to apply to, but a "housekeeper's character", although better than nothing, is open to certain objections, for she will be anxious to get rid of an inconvenient or inefficient servant, and cautious how she lays herself open to subsequent annoyance or unscrupulous innuendo.

Written Characters.—Written characters should invariably be accepted with caution, fraudulent practice in this line, as in the writing of begging letters, having been developed to a fine art. "The gentleman gone abroad", "The lady at present too ill to be approached", "The family out of town and not traceable", or some untoward accident which prevents access to principals, are all plausible but not always trustworthy excuses. It is customary to hand on a written character within a month, but on no pretext should this concession be stretched. With all due respect to masters, written or verbal characters from them are not to be sought if the mistress is at all accessible. About the women's work they can know little or nothing, and even about men-servants the opinion of a shrewd woman is not to be disregarded, so that if a footman's or coachman's character is taken from the master, the lady's may still be obtained with advantage. The lady's realm is the home, and the details of the home life are properly within her knowledge and sphere of influence. "Man goeth forth to his labour till the even"; and his word may be taken about his clerks and office or factory employés, but on reaching his own door-step he in a sense abdicates.

Giving a Character.—Characters are too lightly given. They determine whether the children, property, interests, and perhaps family secrets, are to be handed over in half an hour to a complete stranger. When giving a character, therefore, a mistress should put herself honestly in

Old Servants.—It is impossible to go on giving characters of any appreciable value when the applicant has practically been lost sight of for some time. There are many grounds on which an old servant may leave without reflecting either on herself or her employer. But in most cases a certain indisposition to settle, and a tendency to refer back if dissatisfied with new quarters, will often place the previous employer in an embarrassing position. To give a second formal character in such cases is very inexpedient, and, of course, such a character cannot be claimed. At the same time personal feelings, perhaps obligations, may make it quite justifiable and natural not to refuse to express an opinion favourable to an old and—as far as one's knowledge extends—faithful servant; but in such a case it should be expressly stated that a second formal character will not be given, and that no responsibility whatever is incurred. The too common practice of giving second characters to save trouble injures both sides; it demoralizes servants, embarrasses those who engage them, and impairs the sense of responsibility in those who have to answer for them. A character has not only to be won, but also to be kept. A person, by producing evidence that he was solvent a year previously, cannot prove that he is not now in debt. And these outworn characters are no better than cheques with "No assets" written across them.

Lady Helps.—Lady helps have been described as persons who are not ladies and who are not helps. As this definition indicates, the movement which aimed at reviving the position occupied by well-born girls some two hundred or more years ago has practically been a failure. More successful, however, than most have been those lady helps who act as companions to invalids, male and female, and are willing to combine reading aloud, secretarial offices, or nursery governessing, with some humbler occupations, such as nursing and dusting. There is, too, one class of lady help that seems to be favoured by the special needs of the age, and with the raised and rising level of general prosperity is likely to be more and more in request. This is the lady housekeeper. She may be a relative or any other person of ability and trust, incapable of governessing and indisposed to train

for any formal profession or trade. In engaging such a person, it is well to set down in writing the system under which money is to be dispensed and accounted for. Unimpeachable character and correct arithmetic are the two most necessary qualifications. A general understanding must, of course, be come to—whether or when she is to sit at table, and a certain flexibility must be allowed on the question when she is to mix or not to mix with the company. The position of a lady housekeeper who is at all in the way would soon be irksome to herself and impossible in the house. In engaging any sort of lady help it is above all things necessary clearly to define her position, exactly what is expected of her, and the precise terms on which she is engaged; an inventory of articles for which she is responsible is highly desirable. It may also be convenient to have a general stipulation that she is to do within reason whatever is required of her, and some brief period of notice should be agreed upon. Upper servants—confidential or travelling lady's-maids—frequently slip into these positions. But they would be seldom employed except in rich households, nor are they likely to be engaged for such situations unless they have been directly or indirectly long known by the employer. Still, no amount of confidence or familiarity should make one dispense with definite terms set down in writing, and a clear statement of general duties, responsibilities, and privileges.

Nurse.—Of all domestic servants the nurse occupies by far the most responsible position, and it should be needless to insist that the utmost care must be taken to ensure that she is in all respects trustworthy. The duties of the nurse, together with those of the nurse-maid or under-nurse, will form the subject of a separate section of this work, but it may be advisable to summarize the more important qualifications for these most important posts. The nurse should not be too young, and should be a person of some experience and education. Her character should bear the strictest scrutiny as to temper, truthfulness, honesty, and cleanliness, for her influence cannot fail to have a large share in moulding the character of her charges, and it is essential that she should be capable of maintaining due discipline, without infringing upon the ultimate authority of the parents. It is also advisable that she should be a good seamstress. The under-nurse should possess all the personal qualities indispensable in the nurse, but inasmuch as her duties are not so responsible, the same amount of experience is not of course necessary. The nurse who understands her business should have learned her duties as under-nurse. There is an ever-increasing demand for lady-nurses.

Cook.—In the case of a cook, ascertain her ideas of economy, what help she has been accustomed to, and come to some definite understanding about perquisites—bottles, the sale of "waste", which rightly should go into the stock-pot, and also about visitors. A good rule is to allow no fares, no perquisites, no beer, while visitors should be admitted only at stated times. Some of the best cooks are given to intemperance—exposure to the fire leads them into the temptation; but a cook who cannot be depended upon in this respect is a most dangerous, unpunctual, and generally unreliable person.

French German Swiss Belgian

FOREIGN DOMESTIC SERVANTS

Housemaid.—See "Housemaid's Duties".

General Servant.—In engaging a general servant look out for a person not too old (about 25), and if possible above the average intelligence, on account of the number of things which she is expected to do requiring a considerable amount of method, discretion, and temper. Every department and inmate of the house, from attic to cellar, from master and mistress to baby, cat, dog, and canary, are more or less dependent on her for food, comfort, and even sleep. The mistress, when only one servant is kept, should let her know that she herself will both direct and assist in the housework, and expects early rising and methodical habits, meanwhile remembering always that example is better than precept.

Charwomen.—Charwomen are not popular with good servants, and frequently unsettle inferior ones, as it is to their interests that servants should be leaving frequently and themselves called in to fill the gaps. There are, of course, exceptions, and it is best to engage respectable married women or widows, who have themselves been domestic servants in good houses. They bring to their work some professional instincts which are a certain safeguard against downright theft; but a capacious pocket or bag, not to mention an insatiable appetite, may have to be reckoned amongst the serious drawbacks to their employment, to which may sometimes be added their large families, liable to react in various ways on the food, clothing, and unconsidered trifles about the house where they are employed.

THE LAW OF MASTER AND SERVANT.

In the present article it is proposed to consider, very briefly, the legal relationship of master and menial, or domestic, servant. "Mistress and servant" would, perhaps, ring with a more familiar sound in the ears of many readers; for servants are, as a rule, associated with the mistress rather than with the master. She is generally the person who first interviews and engages them; to her they look for their instructions and orders; and to her they ordinarily refer for their character when seeking a new situation. It should, however, be clearly understood from the beginning that the mistress is only acting as an agent for her husband. Prior to the passing of the Married Women's Property Act, 1882, in England, and the Married Women's Property Act, 1881, in Scotland, this was admittedly the case in nearly every instance; for by the old Common Law a married woman was prevented from entering into almost any contract whatever. Since the passing of these acts she has been endowed with a new contractual capacity in regard to her separate estate, yet there is no reason to suppose that the original principle is disturbed in respect of ordinary domestic servants. "The presumption", says Mr. Eversley, "that has been raised by the Married Women's Property Acts will not be likely to have a general application to such contracts as these, in which the authority of the husband and the agency of the wife are easily inferred from her position in the domestic establishment."

Domestic and Menial Servants.—Every servant who is under the complete control of his master—whatever be his particular form of occupation—is properly considered a menial servant; only those, on the other hand, who dwell in the house, and form, as it were, a part of the family, are strictly entitled to the name of domestic. A gardener, or a coachman, dwelling perhaps in a cottage on the estate, and having perhaps a family and household of his own, is clearly not a domestic servant, but is certainly a menial one. Popularly "menial" has come to involve a certain sense of degradation; but legally and etymologically alike this modern conception of the term is absurd. Johnson, who hesitates in his derivation, defines it as "belonging to the retinue, or train of servants", and quotes in support from Dryden's *Æneid*:—

"Two menial dogs before their master press'd".

"Swift", he adds, "seems not to have known the meaning of the word", and he supports this contention by a line from *Gulliver's Travels*, "The women

attendants perform only the most menial offices". It is clear, however, from the latter quotation that the word was even then beginning to assume its derogatory aspect.

No very clear test has ever been laid down for distinguishing menial, or domestic, servants, on the one hand, from servants in general on the other. In the case of certain classes—railway porters, for instance, or mill-hands—no difficulty is likely to occur; for these are neither members of their master's family, nor exclusively under his control. A governess, on the other hand—and the same consideration applies to a private tutor,—though largely satisfying both conditions, has been held not to be a menial, or domestic, servant. "We are of opinion", said the Chief Baron Pollock, in *Todd* v. *Kellage*, "that a governess is not within the rule or custom as to menial or domestic servants. The position in which a governess is placed, the station which she occupies in the family, the manner in which usually such a person is treated in society, certainly place her in a very different situation from menial or domestic servants."

A legal authority gives the following list of menial or domestic servants:—"Housekeepers, cooks, kitchen- and scullery-maids, housemaids, chamber-maids, nurses, valets, butlers, coachmen, footmen, grooms, gardeners, even huntsmen, and others of similar occupation, whether they board or lodge in the master's house or not". He excludes a governess, a tutor, a housekeeper and manager at a large hotel, and a bailiff and steward, adding that each case must depend on the kind of employment. The latter remark would seem to apply to a permanent hospital nurse, who might or might not be considered a menial servant according to her private social status and the position accorded her in the family.

Infants[1] as Masters or Servants.—Little need be said on the subject of the parties to the contract. As to infants, their contracts are voidable merely on the initiative of the infant, not absolutely void from the beginning. An adult servant who hires himself to an infant is bound by his contract just so long as the infant chooses to keep it on foot; while the infant himself is free to terminate the hiring just when he likes and at a moment's notice. Similarly an infant servant who enters the employment of an adult is free to depart whenever he (or she) wishes; though his (or her) master, as a rule, can only get rid of him (or her) on the usual terms of dismissal. The general principle is subject, however, to a very important exception—an exception, indeed, which, in the particular case of the hiring of servants, almost swallows the general principle—for contracts which are reasonable or necessary to the infant will be rigorously upheld. Necessity varies with the infant's position in life—things which are clearly necessary for a rich infant being unnecessary for a poor one. "The nature and extent of the attendance", it has been said by Baron Alderson (*Chapel* v. *Cooper*), "will depend on his (*i.e.* the infant hirer's)

[1] In English Law a person under twenty-one years of age is called an infant. In Scots Law boys under fourteen and girls under twelve are "pupils", and boys above fourteen and girls above twelve are "minors" until they attain majority.

position in society; and a servant in livery may be allowed to a rich infant, because such attendance is commonly appropriated to persons in his rank of life". A similar train of reasoning, it is submitted, applies in the case of an infant servant; the rank of life, it is obvious, from which domestic servants are usually drawn being such that the fact of their hiring themselves as servants is reasonable or actually necessary.

Married Women as Servants.—The capacity of married women to engage servants has been already considered; the capacity of a married woman to hire herself out as a servant must be dealt with in a very few words. It is extremely doubtful whether she is entitled to enter service without the consent of her husband, except in cases where the latter has deserted her or where she has obtained a judicial separation. Where, however, she has properly engaged herself, her receipt is a sufficient discharge for her wages without the concurrence of her husband's signature.

The Duration of the Contract.—It is free to the parties at the time of the engagement to settle between them the length of the service. In the absence, however, of special agreement, the law will attempt to determine the implied period of the hiring from a survey of the surrounding circumstances. The fact, for instance, that wages are paid monthly or weekly would seem to suggest that the service was intended to be a monthly or a weekly one. It is probable, however, that in a very large number of cases, not only is no definite period fixed for the service at the time of its inception, but there are not even surrounding circumstances from which its duration may be properly inferred. In all such cases the law of England implies a contract for a year, subject, however, to the right of either party to determine the contract by giving a calendar month's notice. In Scotland menial servants are presumed to be hired for six months in the absence of circumstances showing otherwise, and neither party has a right to terminate the contract prematurely.

THE RIGHTS AND DUTIES OF MASTER AND SERVANT.

Punishment.—It is scarcely necessary to remark that a master may not inflict corporal punishment on a servant of full age. He may, however, be possibly justified in thus dealing with a minor; but the experiment would be exceedingly risky, and is certainly not to be recommended.

Wages.—The question of wages should be definitely settled at the time of making the contract. It is stated by Mr. Eversley that additional wages, on the ground of additional services, are not recoverable by a servant, in the absence, of course, of express agreement. A general servant who entered a family where the washing was sent out would not be entitled to additional wages if the washing was afterwards done at home; nor would she be justified in refusing the extra work, unless the sphere of her duties had been so exactly defined at the time of her hiring as necessarily to

exclude it. Certain other points with regard to wages will be more conveniently considered in a later section.

Here it can only be shortly pointed out, by way of anticipation, that wages are payable during a temporary sickness of such a nature as not to entitle the master to rescind the contract of service; that they are payable up to the date of the termination of the hiring in cases of dismissal with a month's notice; and that in cases of ordinary dismissal without a month's notice the servant is entitled to an extra month's wages; although wages, on the other hand, are probably forfeited from the last day of payment in case of dismissal for improper conduct. This latter point, however, is not quite clear.

If, again, a servant is entitled to leave at a month's notice—and this is a very general belief—on payment to her master of a month's wages, she would apparently be entitled to an apportioned amount of her wages up to the date of her actual departure. If, on the other hand, as is far more likely, she is not legally at liberty to pursue this course, it is clear that should she actually do so she would forfeit her wages from the last day of payment.

A master is not entitled to make any deduction from his servant's wages in respect of the damages sustained by himself by reason of the servant's negligence. He must pay her wages in full; and must afterwards recover what he may in an ordinary action for damages. The distinction is of practical importance, for a master might easily be tempted to retain out of his servant's earnings the value of petty breakages, which it would not be worth his time or trouble to recover in a Court of Law. Neither is he entitled to deduct the expenses of a doctor whom he has himself called in to visit a sick servant. Nor, in short, is he ever at liberty to make any deduction whatever. The above, of course, is true only in the absence of express stipulation. A master may make what terms he likes as to deduction at the time of concluding the contract.

Servants are entitled, with certain other kinds of creditors, to priority of payment, in the bankruptcy of their master, for wages due for a period of time not longer than four months, which do not amount in all to a sum greater than £50. Where there are not enough assets to satisfy the servants and other equally privileged creditors in full, the different payments must abate in equal proportions.

Food, Clothing, and Lodging.—Masters are not liable, at common law, to provide their servants with clothing, food, or lodging. Food and lodging, however, are generally expressly agreed for at the time of entering into the contract; and even in cases where there is no express agreement, it is certain that in the case of domestic servants some such agreement will be implied from the mere fact of their being received into their master's household, unless, of course, they are paid board-wages, or there are other circumstances in the case which negative the general presumption. A master neglecting the duty thus undertaken, whether by express arrangement or legal implication, has always been subject to an action for damages; and now

he is further liable to very heavy penalties. By Statute 24 & 25 Vict. c. 100, it is enacted that "whosoever, being legally liable either as a master or a mistress to provide for . . . any servant necessary food, clothing, or lodging, shall wilfully and without lawful excuse refuse or neglect to provide the same, or shall unlawfully and maliciously do or cause to be done any bodily harm to any such . . . servant, so that the life of such servant shall be endangered, or the health of such . . . servant shall have been or shall be likely to be permanently injured, shall be guilty of a misdemeanour, and being convicted thereof, shall be liable . . . to be kept in penal servitude for five years, or be imprisoned for any term not exceeding two years with or without hard labour". And by Statute 38 & 39 Vict. c. 86, it is further provided that "where a master, being legally liable to provide for his servant . . . necessary food, clothing, medical aid, or lodging, wilfully and without lawful excuse refuses or neglects to provide the same, whereby the health of the servant . . . is or is likely to be seriously or permanently injured, he shall on summary conviction be liable either to pay a penalty not exceeding twenty pounds, or to be imprisoned for a term not exceeding six months, with or without hard labour". The superior advantage of the later act appears to consist only in its readier and easier application. A master, it must be remembered, is not "liable" to supply medical aid to his servant on anything except an express contract, and generally speaking the liability to supply clothing rests on precisely the same footing.

Before leaving this topic, it may be noted that a master who refuses to supply food to a servant so old and enfeebled as to be unable to withdraw himself from his master's employment, is liable, should he thus cause the servant's death, to be indicted for manslaughter; and should it, moreover, appear to the jury that "the prisoner was guilty of wilful neglect, so gross and wilful that they are satisfied that he must have contemplated" the servant's death, the prisoner will be guilty of murder (*Reg.* v. *Marriott*). This latter case was concerned, it is true, with a servant of tender years, but the principle in either case would seem to be substantially the same. In *Reg.* v. *Sloames* (referred to by Mr. Manley Smith, but apparently unreported) it was held that a girl sixteen years old was not of "tender age" within the meaning of the above proposition; but in the very recent case of *Reg.* v. *Nicholls* (reported in the *Times*, 3rd May, 1898), the learned judge (Mr. Justice Phillimore) laid stress on the question whether the servant, who in this case had turned seventeen, was really in a position to escape from her mistress's control—a logical way of looking at things which brings these cases referring to servants of tender years into line with the case of an old and enfeebled servant referred to at the beginning of this paragraph.

Servant's Claim to Indemnity.—A master is bound to indemnify his servant from the legal consequences of obeying a lawful order, and even an order which appears lawful to the servant owing to the latter's ignorance of the true facts of the case. Thus, when a master sends his servant on to a neighbour's property, while leading the servant to believe

that the property is his own, and the servant is sued by the neighbour for trespass, and is adjudged to recompense the latter in damages, the master is bound to indemnify the servant, for the latter has acted in what he believed, owing to a mistake of fact, to be a lawful mission. It is probable, however, that had the mistake been one of law—had the servant, for instance, known that the property was not his master's, but not known that his going on to a stranger's property constituted a legal offence—the servant, on the strength of a well-known principle, *ignorantia juris non excusat* (ignorance of the law is no excuse), would have had no claim whatever to indemnity. And certainly he has no such claim, when the order, to his own knowledge, is clearly an illegal one.

Servants' Right to Compensation for Personal Injuries.—Until the Workmen's Compensation Act, 1906, came into force on 1st July, 1907, an employer was not bound to indemnify his domestic servant for physical injuries received by the servant while engaged in his employment, unless the accident was in some way due to negligence or fault on the part of the master. But by the Act of 1906 every domestic servant as well as every other workman is entitled in every case to compensation from his or her master if personal injury is caused to the servant by accident arising out of or in the course of the servant's employment, provided that the servant is disabled from earning full wages for a period of at least one week. It is obvious, therefore, that this subject is one of great importance to householders, and every master and mistress should understand clearly the responsibilities that are involved in employing servants, whether permanent or occasional. That these responsibilities are serious will not be denied. An accident for which the master was in no possible way responsible might render him liable to pay an injured servant during all the servant's life a weekly allowance equal to half the servant's earnings. While, if death resulted, the master might have to pay £150 or even £300. Even if the accident is caused by the misconduct of the servant, the master is not entirely free from liability; for if the accident results in death or serious personal disablement, compensation may still be allowed, although it was attributable to the serious and wilful misconduct of the servant.

Nature of the Injury entitling Servant to Compensation.—The kind of injury contemplated is, of course, physical and personal injury of any kind, whether internal or external, and whether producing disease or otherwise, and to render the master liable it must be caused by an accident. It is not always easy to say whether injuries are accidental or not. There have been many cases in which the application of the word "accident" to the circumstances of the case was disputed. It will always be a question of fact. Generally speaking, an accident means something that happens without being foreseen or expected, "an event which proceeds from an unknown cause, or is an unusual effect of a known cause, and therefore not expected", as it is defined in the *Imperial Dictionary*.

The accident must both arise out of and be incurred in the course of

the employment. Both of these conditions must be present to entitle the servant to compensation. The construction of these words has been frequently before the courts in connection with other employments than that of domestic servant. It will obviously be difficult in some cases to say whether an accident to a domestic servant during her term of service has occurred in the course of the employment or not. In most other occupations the course of the servant's employment is for a certain number of hours each day, and the master is not liable for accidents occurring out of working hours. But a domestic servant's employment does not cease in the ordinary case during the whole day, and, unless when on holiday, a domestic servant living in the master's house may be said to be engaged in his employment.

Amount of Compensation.—The amount of compensation payable under the Workmen's Compensation Act, 1906, is as follows:—Where death results from the injury, and the servant leaves dependants wholly dependent upon his earnings, the master will have to pay a sum equal to three years' wages, or the sum of £150 if that is more than three years' wages. But in no case is the master required to pay more than £300. If any weekly payments have been made to the servant after the accident and prior to his death, or if any lump sum has been paid in redemption of the weekly payments, these will be deducted from the amount payable. If the servant has not been three years with his employer at the time of the accident, the amount of three years' wages is arrived at by taking the average weekly wage earned during the period of his actual employment under his employer at the time of the accident.

If the servant leaves only persons partially dependent on his earnings, the amount of compensation is to be fixed by agreement if possible, and, failing agreement, by arbitration, and is not in any case to exceed what would have been payable if the servant had left dependants totally dependent on his earnings.

If the servant leaves no dependants, the master is only bound to pay the reasonable expenses of his medical attendance and burial, not exceeding £10.

"Dependants" includes, in addition to the members of the servant's family dependent on him, illegitimate children or grandchildren dependent on him, and also the parents or grandparents of a servant who is illegitimate, if they were dependent on him.

Where total or partial incapacity for work results from the injury, the servant is entitled to a weekly payment during the incapacity not exceeding half of his average weekly earnings, and not more than £1 a week. The average wage is calculated by taking his earnings for the twelve months previous to the accident, if he has been so long employed; but if not, then for any less period during which he has been in the employment of the same employer. In estimating the servant's earnings, the value of anything the servant receives as a condition of his employment must be taken into account. Thus board and lodging or clothing

received by a domestic servant form part of the earnings of the servant, and must be kept in view when estimating the amount of the servant's remuneration. A domestic servant receiving £20 a year in wages would be held to be earning about £45, board and lodging being estimated at £25 a year.

The amount of the weekly payment may be varied at any time if there be any alteration in the circumstances to justify either an increase or a modification of the payment. In the case of injury to servants under the age of twenty-one, at any time after a year has elapsed from the date of the accident, the compensation may be increased to an amount equal to half the weekly earnings which the servant would probably have been earning at that date had he remained uninjured.

If the incapacity lasts less than two weeks, no compensation is payable in respect of the first week.

If the servant is under twenty-one at the date of the injury which causes total incapacity, and his average earnings are less than £1 a week, the full weekly earnings must be paid up to, but not exceeding, 10*s*.

Redemption of Weekly Payments.—After an employer has been paying compensation weekly for six weeks he may redeem the weekly payments by payment of a lump sum. Where the incapacity is permanent the lump sum must be as much as would purchase a Post Office Savings Bank annuity equal to seventy-five per cent of the annual value of the weekly payment. In other cases the amount will be fixed by agreement or arbitration.

Settlement of Claims by Arbitration.—It is intended by the Act that questions of compensation to servants for injuries shall be settled as far as possible by agreement, and every facility is given for the amicable settlement of claims. If the parties cannot agree, however, the amount of compensation, or the liability to pay it, will be determined by an arbitrator who, unless the parties agree upon an arbitrator, will be the County Court Judge or someone appointed by him, or, in Scotland, the Sheriff.

An agreement made by the parties themselves, and duly registered, is as binding as a judgment of the court, and legal proceedings will be useless after an agreement has been come to. But if the servant be under age, it will be prudent for the employer to go to the court, as the servant on attaining full age might then sue. The agreement should be in writing, but it is binding although merely verbal. If an agreement by both parties in writing cannot be obtained, one of the parties should make a note of it and ask the registrar of the court to record it.

Recording the Agreement.—Where the amount of compensation has been ascertained, or any weekly payment varied, or any other matter decided under the Act, either by committee, or by arbiter, or by agreement, a memorandum of the fact should be made up and sent by the committee or arbitrator, or any party interested, to the Registrar of the County Court (the Sheriff Clerk in Scotland), who will record it. When

recorded, the memorandum will for all purposes be enforceable as a judgment of the court. The registrar must give notice to the parties of a proposal to record such a memorandum, and the employer may object to its being recorded on the ground that the servant has in fact returned to work, and is earning the same wage as before the accident.

Notice of Accident.—The injured servant is bound to give notice of the accident as soon as practicable after it happens, and before the servant has voluntarily left the employment, and the claim for compensation must be made within six months from the occurrence of the accident, or in case of death within six months from the date of death.

Casual Servants and Members of the Family.—A servant whose remuneration exceeds £250 a year, and who is not employed in manual labour, is not entitled to compensation for injuries under the Act of 1906. Nor is a person whose employment is of a casual nature and who is employed otherwise than for the purposes of the employer's trade or business. A member of the employer's family dwelling in his house is not entitled to compensation for injuries.

It will be difficult in many cases to say whether a servant's employment is of a casual nature or not. "Casual" means fortuitous, accidental, coming by chance, occasional, or without regularity. In the household the question will arise in regard to people who do odd jobs, like window-cleaning or occasional gardening or charing. If such workers are engaged to come at regular intervals, such as once a week or once a month, they will not, it is thought, be casual workers. The boy who comes every morning to brush the boots, and the girl who washes the steps on regular days, will be entitled to compensation for injuries arising out of and in the course of their employment. But if a charwoman or a window-cleaner is called in at odd times, and the engagement is for the occasion only, liability on the employer's part will not arise.

There is an important distinction between persons employed casually in connection with the employer's trade or business and those employed in the household or otherwise, for if a person is employed for the purposes of the employer's trade or business, he is entitled to compensation for accidental injuries even though his employment be of a casual nature. A keeper of a boarding house would probably not be in the position of an ordinary householder, but would be liable for injuries sustained by people casually employed on odd jobs about the house, such as window-cleaning or charing, the management and upkeep of the house being part of his trade or business.

Contracting Out Prohibited.—It must be observed that no agreement between employer and servant to waive the servant's right to compensation under the Act is valid or effectual. Where a scheme of compensation certified by the Registrar of Friendly Societies is substituted for the provisions of the Act, it may come in place of the provisions of the Act, but no scheme of this kind deals with the case of persons employed in domestic service.

Application of the Workmen's Compensation Act of 1906 to servants in the employment of the Crown.—The Act, of course, does not apply to persons in the naval or military service of the Crown, but it is specially provided that it shall apply to servants employed by or under the Crown to whom the Act would apply if the employer were a private person. It will therefore apply to menial or domestic servants employed by the various departments of the State where the employment is by or under the Crown. In the case of servants employed in the private service of the Crown, the head of the department of the royal household in which he was employed at the time of the accident is regarded as the employer.

Insurance against Liability for Accidental Injury to Servants.—It may be taken for granted that the legislature would not have imposed on employers of domestic servants the heavy responsibilities explained above, if the employer were not able to protect himself by insurance. This he can do by a small annual payment to an insurance company. The rate for insuring indoor servants is about 2*s.* 6*d.* for each servant; for outdoor permanent servants, such as gardeners and coachmen, it is from 5*s.* to 7*s.* 6*d.* To ensure a chauffeur will cost about 20*s.* a year.

Selecting an Insurance Company. — There are many companies willing to issue policies insuring employers against liability under the Workmen's Compensation Act. But the companies are not all equally strong and reliable, and it is important that the company selected should be strong financially, having large funds, and of undoubted reliability, and with a reputation for careful management as well. It must be kept in view that the insurance company may have to continue making a weekly payment to an injured servant for many years, and that if the company at any time fails to pay the amount due to the servant, even many years after the accident which disabled the servant, the employer will still be liable. Therefore it is imperative to insure with a company whose financial position is beyond question.

The Policy: Points to be Observed.—Care must be taken to see that the insurance policy really affords the employer the protection he asks, and completely transfers responsibility from his shoulders to those of the insurance company. The wording of the policy should be carefully scrutinized. The liability undertaken should be described in sufficiently general terms to cover the employer's entire responsibility under the Act. The policy should not specify the indoor servants as "cook", "housemaid", "nurse", and so forth, but should describe them in such general phrase as so many "indoor servants". With a narrow or specific description, it might be disputed whether an injured servant fell under it, and liability might be evaded by the insurance company on the ground that the servant injured was not the particular kind of servant specified in the policy. The employer should be insured against injury to temporary as well as permanent servants, and no more definite description than temporary servants should be used.

The policy should state that the company, in consideration of the

premium, undertakes to indemnify the employer against liability under "the common law Fatal Accidents Act, 1840; The Employer's Liability Act, 1880; The Workmen's Compensation Acts, 1897, 1900, and 1906"; in respect of personal injury caused by accident to any servant mentioned in the schedule annexed or subjoined to the policy during the period covered by the insurance. The schedule should specify the number of permanent indoor servants and the number of temporary servants without further specification. The companies require the permanent outdoor servants to be specified as gardeners, coachmen, chauffeurs, and so forth, because a different rate is charged for each of these classes.

There should be nothing in the policy limiting its application to accidents occurring in the United Kingdom, for an employer often enough transfers his household to the Continent during the holiday months, or takes his chauffeur on tour abroad, and he could not prudently be uninsured while out of the United Kingdom. He should be insured against liability wherever the accident happens. The phraseology used above appears sufficiently wide for this purpose.

Further benefits beyond relief from mere legal liability can be secured by paying a small additional premium. Thus a policy may be obtained under which the company undertakes to pay the full earnings, including board and lodging, of the injured servant during total incapacity for a month after the accident, and also medical expenses up to £5, and that in addition to indemnifying the insured against his legal liability. Or a policy may be obtained indemnifying the employer against his legal liability, and also undertaking to pay half the servant's wages for a period not exceeding twenty-six weeks, if the servant be totally disabled by certain frequent enough illnesses, such as scarlet fever, diphtheria, erysipelas, pneumonia, &c., together with medical expenses up to £5.

Conditions of the Policy.—A policy should not be accepted with a long list of conditions subjoined or printed on the back. The only essential conditions should be the payment of the premium, and, of course, it is to be understood that the statements made by the insured in the proposal are true. But it is not unreasonable that the policy should stipulate that the insured is to give notice to the company of the occurrence of the accident. The insured, however, should not be bound to give notice within a certain number of days after the accident. Many days might pass before the serious nature of the accident was realized by anyone, or before the master was informed of it. So the stipulation as to notice should be nothing more than an obligation on the master to give notice as soon as practicable after the accident comes to his knowledge, and to inform the company of any written intimation received by him, or any claim made by the servant, or other proceedings. The insured must also give all necessary information or assistance to the company in connection with any claim arising out of the policy. The company will be entitled to use the employer's name in any legal proceedings that may arise in the event of a servant's claim being disputed. All legal costs incurred in

defending an action for compensation at the instance of a servant will be defrayed by the company.

Window Cleaning.—By the Town Police Clauses Act, 1847, it is enacted that every occupier of any house or other building, or other person who in any street, to the obstruction, annoyance, or danger of the residents or passengers, orders or permits any person in his service to stand on the sill of any window in order to clean, paint, or perform any other operation upon the outside of such window, or upon any house or other building within the said limits (*i.e.* apparently the districts for which the Act has been adopted), unless such window shall be in the sunk or basement story, shall be liable to a penalty not exceeding forty shillings or fourteen days' imprisonment"; and any constable or other officer, appointed by virtue of this or the special Act, shall take into custody without warrant, and forthwith convey before a justice, any person who within his view commits any such offence. In Scottish burghs it is a police offence to permit any female to stand on the sill of any upper window in order to clean, paint, or perform any other operation upon the outside of the window, or upon any house or other building.

MASTER'S LIABILITY FOR SERVANT'S CONTRACT.

There are three ways in which a master may render himself liable for his servant's contract made in the master's name:—(1) by adoption; (2) by giving the servant an express authority to pledge his master's credit; (3) by giving him an implied authority. Of the first of these ways there is little to be said, and, even in the case of the second, the only real difficulty arises from the fact that implied authority sometimes arises out of express authority by an almost imperceptible process.

By Adoption.—A master is free to adopt, or not to adopt, an unauthorized contract made by his servant in the master's name; but when once he has adopted the contract, he is bound by it, and is not afterwards at liberty to change his mind. If, moreover, he adopt the contract at all, he must adopt it as a whole; he is not free to pick and choose as to what he will ratify, and what repudiate.

By Express Authority.—The nature of an express authority scarcely appears to need explanation. It should, however, be noted that express authorization may be of two kinds: special, as where a master sends his servant to a shop to buy a particular article; and general, as where he tells him to buy a particular class of goods, as occasion arises, from time to time. General express authority admits, in its turn, of a further obvious division; it may be limited, as in the case supposed above, to a particular class of goods; or it may extend to everything that the master requires in the management of his house or the conduct of his business. Even in the latter case, the general authority will naturally be bounded

by certain clear limits, and it is incredible that under any circumstances a servant should be authorized to pledge his master's credit with reference to every imaginable class of property and to any imaginable extent. Express authority may be given to the servant either orally or in writing. In practice it is almost invariably the former. The chief danger in giving express authority—unless exercised with extreme caution—is that it often passes almost imperceptibly into implied authority. This will be better understood by a perusal of what follows.

By Implied Authority.—No authority to contract in the master's name is implied from the bare relationship of master and servant—it arises only from the master's own act in what is known as "holding out" the servant as his agent. It will be convenient to follow out step by step the growth of an implied authority. A master, it is supposed, sends a servant to a tradesman to make a certain purchase upon credit. The servant is a stranger to the tradesman, and the latter, if he gives the servant credit, will only be entitled to recover from the master on showing that the servant was acting in the matter on an express authority. But if the master pays the bill without demur, and the servant comes again and again on a similar errand, and always with the same satisfactory result, there grows up on the tradesman's part a reasonable presumption that the servant has an express general authority to enter into this particular kind of bargain—there arises, in fact, on the tradesman's part, an implied authority for the acts of the servant. Now suppose that in the case of a number of particular purchases an express authority, as a matter of fact, has really been given by the master, or that a general authority has really been given to make purchases of this particular description, and suppose further that one day the servant comes to the tradesman apparently just as usual, but without having on this occasion received his express authority, or after his general authority has been withdrawn. The tradesman, it is clear, knowing nothing whatever of these altered circumstances, will serve him exactly as usual, and will be able as usual to recover from the master, for the latter, by constantly allowing his servant to pledge his credit, has "held out" that the servant is entitled to do so. Or, in other words, although in the latter case there is no express special authority, and although the general authority has been withdrawn, yet the tradesman acts on a sufficiently good implied authority, until he learns, or might easily learn, if he took ordinary precautions, that the circumstances of the case have altered. On the other hand, when a servant has always been in the habit of paying cash, but one day unexpectedly asks for credit, the tradesman will not be justified in implying that the servant is acting on his master's authority. It must be remembered that the implied authority is limited to the particular kind of contract, or contracts, out of which it originally grew. Also, that when once a master has "held out" his servant as his agent, he is bound, in cases even where the servant is acting directly against his master's order, or after the general authority is withdrawn, provided, of course, in either instance that this is unknown to the tradesman. For implied authority, when once

established, lasts until it is destroyed by notice to the person implying it. The servant's authority is also revoked by the death of the master.

MASTER'S LIABILITY FOR SERVANT'S WRONGFUL ACTS.

Wrongs—setting aside wrongs arising out of contract—may be divided into two great classes: (1) civil wrongs—torts, as they are called—for which the remedy is a civil action for damages; (2) crimes, for which the remedy is the infliction of some kind of punishment.

Servant's Crimes.—Of the master's liability for the criminal offences of his servant, little need be said here. Generally speaking, he is not thus liable, except in cases where he has expressly authorized, or has even actually co-operated in, the commission of the crime; although there are a few instances of quasi-criminal offences, *e.g.*, offences arising under the Licensing Acts, in which the master is personally liable even in cases where the offence has been committed without his knowledge or control.

Servant's Civil Wrongs.—As to civil wrongs, or torts, the general principle is clear, that the master is responsible for all the torts of the servant committed in the scope of the latter's duty, whether the tort has, or has not, been expressly authorized by the master. There exists, however, considerable difficulty in determining what acts do, or do not, lie within the scope of the servant's employment. Obviously it will be necessary, in each particular instance, carefully to consider all the surrounding circumstances. It must be remembered that an act committed in the scope of a servant's employment does not only mean an act which it might reasonably be inferred that the master would authorize the servant to do, or which naturally falls to be done in the discharge of the servant's duty. A servant who, in driving his master's carriage, negligently runs down and injures a pedestrian, clearly renders his master liable. It is true that this particular default was neither authorized by the master nor done in the discharge of the servant's duty. But it is equally true that the accident arose, although purely out of the servant's negligence, none the less at a time when the servant was acting within the scope of his master's employment. On the other hand, a servant who takes his master's carriage for his own amusement is not acting within the scope of his employment, and will not therefore render his master liable for any tort committed by himself while thus acting on his own initiative. Thus, too, it has been decided that a coachman, who, in order to extricate his master's carriage, lashes a stranger's horses, and so causes an accident, renders his master liable; but a coachman who strikes at a stranger's horses to gratify some private end of his own does not make his master responsible.

Common Employment.—Until the Workmen's Compensation Act 1906 came into force, the general principle of a master's liability for the wrongful acts of his servant in the course of his employment was subject

to a very important exception arising from the doctrine of "common employment". As far as it touched other forms of service, this doctrine had been largely superseded under the provisions of the various Employers' Liability Acts, but none of these Acts applied to the case of menial or domestic servants. Roughly stated, the doctrine of "common employment" amounted to this—that a master was not liable for the tort or wrongful act of his servant which resulted in injury to a fellow servant, when the latter, at the time of his injury, was working within the scope of his employment; provided always that competent fellow servants and proper appliances had been provided by the master and that the spheres of duty of the two servants were practically coincident. By the Workmen's Compensation Act of 1906, however, the defence of "common employment" has been entirely swept away, and the master is liable for injury incurred by a servant in the course of his employment, even although the injury is caused by the wrongful act of a fellow servant.

CRIMINAL OFFENCES COMMITTED BY THE SERVANT.

Moral offences of a gross nature, such as drunkenness, render the servant, as will presently be seen, liable to instant dismissal; and probably, though the point is doubtful, to forfeiture of wages due since the last day of payment. Criminal offences, it need scarcely be added, subject the servant to the same liabilites; but besides this, they may also sometimes necessitate the setting in motion of the criminal law. A very few words will be added here on the forms of criminal offence of which servants are most frequently guilty, and at the same time a word of advice will be given as to the safest manner in which a master can act in these unpleasant emergencies.

The Search of Servants' Boxes.—The law draws a subtle and difficult distinction between ordinary theft, or larceny, on the one hand, and embezzlement on the other hand, with which, however, it is unnecessary to trouble the reader here, although the distinction is still, in spite of modern legislation, of practical importance. For present purposes it is more important to inquire whether the master has any, and what, right to search a servant's boxes on suspicion of his having been guilty of stealing. With the servant's consent, of course, this proceeding is quite permissible, but a master who proceeds to make such search in disregard of the servant's wishes, lays himself open, at the servant's suit, to a civil action for damages. The best course obviously is to obtain the servant's consent in a considerate and amicable manner by representing to him that he will, by giving such consent, go a long way, if really innocent, towards vindicating his character from the suspicion which must otherwise attach to him. If, moreover, there are several servants, it is clearly the wiser course, not merely to seek permission to search the boxes of the one particularly suspected, but of all alike, thus avoiding the unnecessary offence of singling out for particular suspicion a possibly innocent servant. Moreover should the suspected

servant alone refuse his assent, it is clear that the *primâ facie* case already made out against him will be immensely strengthened by this line of conduct. In the ultimate case, however, of consent being absolutely refused, two other courses still remain open to the master:—(1) He may call to his aid the assistance of a constable, acquaint him with the facts of the case, and leave him to take what action he thinks best on his own initiative. A constable, it should be remembered in this connection, has more extensive powers than an ordinary citizen; for whereas the latter, for instance, may only arrest when he knows that a felony has actually been committed, a constable may arrest on reasonable suspicion that a felony has taken place. The mere circumstance that property has disappeared, under circumstances that suggest a felony, does not entitle the master, though it may very well entitle the constable, to arrest a suspected person. The master, moreover, should not suggest to the constable that he should search the suspected servant's boxes, or take any similar course—the suggestion should come from the constable himself. (2) Or the master may go before a magistrate, lay an information, and apply for a search-warrant. In neither case, of course, should the master act except *bonâ fide* and with reasonable ground for his suspicions.

Servant's Gifts of Master's Property.—It may be as well to remind the reader that for a servant to give away or sell food, or any other property belonging to his master, whether in or outside the house, is technically a criminal offence, though one which obviously varies in its enormity according to circumstances; there being clearly all the difference in the world between giving a crust to a casual beggar and making a regular practice of entertaining one's friends at somebody else's expense. In this latter connection it may be noted that those who enter a master's house, without his knowledge or permission, to eat or drink the master's food, may find themselves, under certain circumstances, guilty of a felony.

THE DETERMINATION OF THE CONTRACT.

By Death of Either Party.—The hiring determines on the death of the master, unless it is otherwise expressly stipulated at the time of making the contract. Menial, or domestic, servants are, however, entitled to a proportionate part of their wages calculated up to the date of their employer's decease. The service is also determined by the death of the servant. This simple proposition calls for no further comment.

By Notice.—It must be remembered that both master and servant are absolutely free, at the time of hiring, to make exactly what terms they please as to how the hiring is to end. In the case, of course, of unusual arrangements, it is only prudent that the particular agreement should be carefully reduced to writing; but since, in all probability, special and unusual agreements on the point are seldom entered into, it is seldom that

anything is put into writing, except, of course, under the provisions of the Statute of Frauds. It is probable that in the vast majority of cases nothing is said at the time of engagement as to either the duration of the service or the conditions of its conclusion. In such a case the law of England implies an engagement for a year, but it further implies that this term may at any time be prematurely determined by either party on his giving to the other a calendar month's notice. It further implies that the master is also free to dismiss his servant without notice, on paying him, in lieu of notice, an extra month's wages, in addition to the wages actually due to him up to the time of dismissal. The question of improper conduct is not at present under discussion. A master who dismisses his servant at a moment's notice is not bound in England to give him board-wages for the calendar month, nor compensate him for the expense of lodgings.

In Scotland, if nothing is said as to the duration of the service or the conditions of its termination, and there are no circumstances from which the intention of parties may be deduced, the law will presume, in the case of menial or domestic servants, a six-monthly engagement, which cannot be prematurely terminated by either party without incurring liability for damages. In the case of the servant being the injured party, these would usually be assessed at wages and board-wages for the unexpired period of the engagement.

There prevails a belief in England that the servant is free to determine his engagement without notice, on paying his master a month's wages, and to demand, on thus leaving, a proportionate amount of his earnings. It has been argued, however, that this view is untenable; and it is at least as likely as not that a servant thus acting in England not only forfeits all claim to wages as from the last day of payment, but also exposes himself to a civil action for damages, as he would in Scotland.

In the case of a definite engagement for any fixed period, it is better to arrange the conditions of leaving at the time of making the contract, for it is questionable whether in such a case the hiring can be prematurely determined by notice. In the case of an engagement from week to week, or from month to month, a week's or a month's notice, as the case may be, must presumably be given in England. But in Scotland an engagement from month to month is terminated by a fortnight's notice.

There prevails another custom, not yet recognized law in England, but clamouring to receive this recognition. In *Moult* v. *Halliday*, "the plaintiff, a housemaid, sued her master, the defendant, for a month's wages, which the latter declined to pay, on the ground that the plaintiff had left his service without giving him proper notice. The plaintiff, on the other hand, contended that, by a custom which she alleged to exist in regard to domestic service, she was entitled to leave—as she had in fact done—at the end of the first month, provided she had given notice of her intention to do so at or before the expiration of the first fourteen days of her service. The case was tried in the Westminster County Court, and the judge held, first, that no such custom existed, and further, that if had existed, it

would have been bad on the score of unreasonableness." The plaintiff appealed to the Divisional Court, and the latter considered themselves bound, on a technical ground, to uphold the decision of the Court below, but Mr. Justice Hawkins took the opportunity of indicating plainly that not only did he personally consider that the evidence before the County Court judge would have justified the latter in finding that the custom as a matter of fact existed, but that in his opinion the plea of unreasonableness could not be upheld.

There are few, it is imagined, who are likely to dissent from this latter proposition. So obvious, in fact, are the advantages of this quasi-custom, from the point of view whether of the employer or of the employed, that it is strongly recommended that a special express stipulation should be made on this point in the case of every engagement, until the law on this subject has been placed on a definite footing. It is true that since the decision in *Moult* v. *Halliday* a similar case has been decided in another County Court precisely the opposite way, but it is still much to be desired that a clear ruling on this important point should be given by the High Court. In the absence of some such custom—and in the further absence, of course, of express stipulation—it is clear that in England no hiring can possibly be determined in a period less than two months. That the master is free to get rid of his servant on similar terms is not alleged to be the custom in *Moult* v. *Halliday*, but there is little doubt that if the one custom be established, its complement will follow. In Scotland the custom of giving fourteen days' notice to terminate a monthly contract of service is general.

By Dismissal for Wrongful Conduct.—A master is justified in dismissing his servant without previous notice, and without paying him a month's wages in lieu of notice, on any of the following four grounds:—(1) Wilful disobedience of a lawful order falling in the scope of the servant's duty; (2) immoral conduct; (3) habitual laziness; (4) incompetence arising from permanent illness or from any other source. This fourfold division, though practically convenient, is perhaps not strictly scientific, for wilful disobedience and habitual laziness may themselves be very properly considered a form of immoral conduct. Immoral conduct, however, must here be taken to mean not every offence in the largest sense of the term against the moral law, but only those peculiarly gross offences, such as theft, drunkenness, or unchastity, which are properly ranked in the public conscience in this opprobrious category.

(1) As to wilful disobedience of a lawful order, falling in the scope of the servant's duty, the principle has been pushed almost beyond its legitimate extreme in *Turner* v. *Mason*. In this case a maid-servant requested, and was refused, permission to be absent for the night. Notwithstanding, she absented herself, her object being solely to visit her sick mother at the latter's urgent request, and she found herself dismissed on the following morning on her return to her master's house. The dismissal was held to be quite proper, and although it did not appear in the evidence that her master was aware of the cause of her going, it was intimated plainly

from the bench that the point was immaterial. On the other hand, in *Jacquot* v. *Bornd*—though this was not a case of domestic service—it was suggested by Baron Maule, that a servant who had already been working for eighteen hours and obstinately refused to work longer, or a servant who was ordered, but refused, to work on a Sunday—it being no part of his regular duty,—was justified in his refusal. It will be seen that it is not always easy to draw any hard-and-fast line between reasonableness and wilful refusal, but in the vast majority of cases no practical difficulty is likely to occur. Recollect that the order must be given by one in authority; that it must be lawful; and finally, that it must be one that falls within the scope of the servant's duty.

(2) As to immoral conduct, it seems unnecessary to say much. Drunkenness, unchastity, theft, and grossly insolent behaviour all fall under this category. And all of them render the servant liable to instantaneous dismissal.

(3) As to habitual laziness, it may be noted that the laziness and neglect of work must really be habitual. A single exhibition of this kind of wrong-doing clearly would not entitle a master summarily to dismiss his servant, except, perhaps, in the single instance of its having caused him positive injury.

(4) As to incompetence arising from permanent illness or from any other source, it must be remembered that incompetence is a relative term; conduct which would be incompetent in a highly-paid and reputedly-skilful servant, being excusable in a servant who has been taken at lower wages expressly on the ground of his lack of proper training. Temporary illness is no good ground for dismissal, and wages are payable as usual during its continuance.

In all cases of dismissal for incompetence or permanent illness, wages are payable up to date. But in instances of dismissal on any other of the three grounds given above, it is highly questionable whether this is the case, or whether, on the contrary, wages are forfeited as from the date of the payment of the last instalment. The better opinion seems to be that they are thus forfeited.

Ejectment of Servant.—A domestic servant who is legally discharged may apparently in England be forcibly ejected by his master, or by a constable called in by the latter. In Scotland it would not be safe to eject a servant forcibly without a warrant from the Sheriff; and a constable will not interfere unless there be a breach of the peace or some other ground of complaint. Apparently, also, the master is entitled to turn the servant's boxes out of the house; and this latter proposition would appear to be true even in cases of wrongful dismissal. Thus in *Lake* v. *Campbell*, a servant—not a domestic, nor apparently a menial, servant—was wrongfully discharged by his master, and his property turned out of the house, whereby he suffered a monetary loss. He failed, however, in his claim for damages.

Damages for Wrongful Dismissal.—The only damages recoverable by

a servant in England for wrongful dismissal, in addition to his proportioned amount of earnings, are one calendar month's wages, since his master could have got rid of him at once by making him this payment. It is suggested, however, that in cases where a different length of notice has been specially provided for, or in cases where it is ordinarily impossible to determine the hiring before its natural expiration, the measure of damages would be, by parity of reasoning, a sum proportionate to the necessary length of notice, or to the residue of the term respectively. In Scotland, as above explained, a servant wrongfully dismissed would be entitled to board wages in addition to wages for the unexpired period.

Servant's Character.—No master is bound to give a servant a character; but it is well pointed out by Mr. Baylis, Q.C., that the refusal to do so "might not only appear to arise from vindictive feeling, but might even be more prejudicial to a servant than a fair statement of the facts affecting his character, from which the person requesting the character would be at liberty to draw his own conclusion, and act upon his own judgment".

The giving of a character is a privileged action, and it will accordingly be necessary for the servant to prove, in an action for libel or slander, that the master, in making statements injurious to the servant's character, was instigated by actual malice. It is not sufficient for the servant to show that the bad character was in fact undeserved. Actual malice may be implied from a number of surrounding circumstances, *e.g.*, if a master give a bad, but undeserved, character, knowing it to be undeserved, or careless whether it be deserved or not, that is evidence of actual malice. Again, if the master give a bad character voluntarily, without having been asked to give a character at all, that fact, though it does not in itself constitute actual malice, yet necessarily raises a *primâ facie* assumption in its favour. On the other hand, even a true bad character may constitute a libel, if "there should be extraordinary circumstances of express malice" (implied by Lord Mansfield in *Hargrave* v. *Le Breton*). A master who has given a good character, and subsequently discovers something to the servant's disadvantage, is privileged in communicating his discovery to the servant's new master under the same restrictions as to actual malice.

Although it lies outside the strict province of this article, it may perhaps be allowable to point out that an oral character given in person is in all ways more reliable and satisfactory than a written one, for the latter may be forged, or may even refer to some third person whom the servant is attempting to personate. Let no master hesitate, on the proper occasion, to tell the truth about his servant without fear and without favour. It is, in fact, his duty to do so; and unless he be actuated by express malice, he need be under no uneasiness as to the probable results of discharging this obligation.

The evil of giving fictitious characters has been dealt with by the legislature. By Stat. 32 Geo. III. c. 56, it was enacted as follows: (1) that any person falsely personating any master or mistress, and either personally or in writing giving any false, forged, or counterfeited character to a

servant offering himself or herself for hire; and (2) any person knowingly or wilfully pretending, or falsely asserting in writing, that any servant has been hired or retained for any period whatsoever, or in any capacity other than that which or in which such person shall actually have hired or retained such servant; and (3) any person knowingly or wilfully pretending, or falsely asserting in writing, that any servant was discharged, or actually left such service, or that any such servant had not been hired or employed in any previous service contrary to truth; and that (4) any person offering himself or herself as a servant, and asserting or pretending that he or she had served in any service in which such servant shall not actually have served, or with a false, forged, or counterfeit certificate of character, or in any wise adding to or altering anything in a genuine certificate of character; and (5) any person pretending never before to have been in service, contrary to the fact; shall on conviction before two or more justices of the peace forfeit and pay a fine of £20 and costs, or be committed to prison.

EXCISE LICENSES FOR MALE SERVANTS.

By Statute 32 and 33 Vict. c. 14, a duty of 15*s.* is payable annually for every male servant. A list of the persons included under the head of "male servants" is given in sec. 19, sub-sec. 3 of the Act—"Maître d'hôtel, house-steward, master of the horse, groom of the chamber, valet de chambre, butler, under-butler, clerk of the kitchen, confectioner, cook, house-porter, footman, page, waiter, coachman, groom, postilion, stable-boy or helper in the stables, gardener, under-gardener, park-keeper, gamekeeper, under-gamekeeper, huntsman, whipper-in, or in any other capacity involving duties of any other of the above description of servants, by whatever style the person acting in such capacity may be called". The difficulty experienced in interpreting this section led to the passing of a subsequent statute, 39 Vict. c. 16, by sec. 5 of which it is provided that the term "male servant" in the above section shall not include a servant who, being *bonâ fide* employed in any capacity other than the capacities specified or referred to in the above section, is occasionally or partially employed in any of the said capacities, and shall not include a person who has been *bonâ fide* engaged to serve his employer for a portion only of each day, and does not reside in his employer's house. The first exception has been held to cover the case of a lad employed by a farmer to attend to the bullocks in his yard and work on his land, and also to feed his pony. The boy further cleaned the harness and washed the trap when necessary, and occasionally drove with his master to and from the railway-station. The master, on the other hand, occasionally himself attended to the harnessing, unharnessing, and grooming of the pony. It was held that the lad was only occasionally and partially employed as a groom, and that his master was accordingly exempt from paying duty for him. The second exemption

does not apply to those who serve in a taxable capacity for such number of hours daily as suffices for the performance of a fair day's work. The only reported decision discoverable on the point appears to be one of the Scotch High Court of Justiciary (*Schultz* v. *Steel*), in which it was decided that a gardener, employed at weekly wages, but not residing in his master's house, who worked on an average seven hours a day, but was not bound to serve for any particular time, and was also at liberty to work for other people, but had no employer other than his master, was not exempt under the later statute. The case, of course, is entirely different in the instance of a mere jobbing gardener, or any other male servant similarly circumstanced.

Officers in the army and navy, and hotel-keepers and retailers of intoxicating liquors, and refreshment-housekeepers, are, under certain circumstances, exempt from the payment of this duty.

Practical Advice.—One word of practical advice is given in conclusion. Never, if it can be helped, leave any term of the contract of hiring to the ambiguous construction of the Common Law. Settle, on the contrary, every term with precision, and reduce it clearly into writing. Master and servant are free, it must always be remembered, within very broad limits, to settle between them at the time of entering into the contract the terms of the intended service. It is better to err on the side of extra precaution than of carelessness and neglect of detail.

THE TREATMENT OF SERVANTS.

That it is exceedingly difficult to lay down any hard-and-fast rule concerning the treatment of domestic servants is a fact recognized by all experienced mistresses, yet on the success of the method pursued depends the comfort of a household. Owing to the scarcity of servants, perhaps the tendency of the day is towards an easiness of discipline and a certain injudicious indulgence which defeat their own ends, for a lax mistress is never respected by her maids. Indeed, although it may seem strange, she is often positively unpopular, in the same way that a "slack" officer is unpopular in the army or the navy. As in most things, the middle course is the best to follow, and the mistress who, while insisting on obedience to her reasonable and carefully-considered regulations, enforces them with kindness, and who is above all things absolutely just and consistent in all her dealings, has the best chance of obtaining good service from her maids.

One of the most important articles in the household constitution is the set of rules which should be drawn up for the definition of each servant's work. These should be as clear and detailed as possible, leaving no loophole for that ancient and annoying excuse, "Please, m'm, I didn't understand it was my work", with which most ladies are painfully familiar. But there must be a fair amount of give and take between the maids; when one is out or ill, another must undertake her work.

The special duties of each are dealt with elsewhere under the headings of "Cook", "Housemaid", and "Nurse"; therefore it is unnecessary to enter into particulars here.

Servants' Rooms.—Although the servant herself is often by no means fastidious about her sleeping-quarters, this fact does not affect the responsibility of the mistress. For her own sake, if for no more philanthropic reason, she should do her best to keep her servants in health, and this is impossible if they are obliged to sleep in the dark and airless basement-bedrooms which are often found in the older type of town-houses. In London flats the accommodation for servants is often disgraceful—an absurdly small room opening directly out of the kitchen. The situation is rendered still more objectionable by the fact that there is seldom a fireplace, or any other means of ventilation except a window looking into a dark and airless "well" in the centre of the block.

A maid's bedroom should be situated where it will get a reasonable amount of light and air, and although it need not be obtrusively close to the best bedrooms, it certainly should not be too far away from the mis-

tress's own quarters. If, as in some old houses, some of the bedrooms are without fireplaces, there should be a special arrangement for providing ventilation without draught—one that cannot be interfered with by the occupant, who has often a strong prejudice against fresh air.

There is no reason, moreover, why the servants' quarters should be the only tastelessly decorated spot in an artistic house. A cheerful paper, or, better still, a washable distemper of pretty colour; neat window-curtains of a pretty washing cretonne, reaching only to the sill; and two or three photogravures in plain oak or walnut frames on the walls, will brighten the room considerably. It is well worth the small expense to have the floor covered with cork-carpet or linoleum, for in winter bare boards can scarcely be scrubbed often enough to keep them in spotless condition, while stained boards show every speck of dust. Linoleum or cork-carpet can be kept perfectly clean by wiping with a wet cloth, rubbing dry, and beeswaxing; and there is the additional advantage of warmth.

As to the furniture, the attractive-looking, gaily-enamelled, "complete suites for servants' bedrooms", sold for £4 or £5, are in some cases by no means sound investments. Unless they are selected with care, the purchaser may find that the construction is flimsy, the drawer accommodation is limited, and the bedding (often included in the price) of very inferior quality. And a hard-working servant certainly deserves a comfortable bed. That she should have one to herself, it is, we may hope, almost superfluous to suggest in these days. The bedstead should be a strong, plain iron one, with a chain or wire-wove mattress, and the overlay should be of good wool if the expense of hair is considered too great. Mattress, bolster, and good feather pillow should all be provided with removable outside covers of holland or unbleached calico, sewn, buttoned, or tied on over their ticking-cases. The allowance of blankets ought to be ample, and the sheets should be large enough; unbleached linen being cheapest in the long run. The first cost of twilled cotton is, of course, less, and the maids themselves generally prefer it as being warmer.

The best kind of wash-stand for servants' use is a perfectly plain table of varnished pine or ash, without a drawer but with a marble top. Such a table costs about 20*s*. to 25*s*.; that is to say, three or four times as much as one of painted deal, but it is well worth the additional money. If two maids have to share a small room, triangular wash-stands can be fitted into corners to economize space, but in any case each maid should have a toilet-service to herself. And the servants' toilet ware should be alike throughout the establishment, whether two or twelve maids are kept. It is an economical plan, as one complete set can often be made up with the unbroken pieces of two or three others. A roomy chest of drawers should be supplied to each maid. This will serve as a toilet-table, if provided with a mirror, which should be of useful size and of good quality. It may not be desirable to encourage vanity, yet there is no reason why an unfortunate maid should have to arrange her cap with the aid of a 6-inch square of blurred and spotted glass.

Besides the chest of drawers, some provision for hanging up dresses and jackets should be made, as servants ought not to be allowed to keep their boxes in their rooms, or, at any rate, not more than one small box apiece. If a cupboard on a landing or in a box-room cannot be appropriated for the purpose, a plain painted deal wardrobe, with two distinct divisions, is not a very costly piece of furniture. Or a recess may be fitted up with hooks

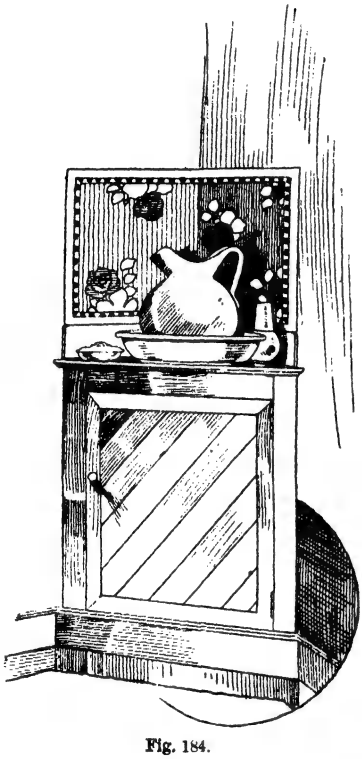


Fig. 184.

Fig. 185.

Servant's Bedroom Furniture.

Fig. 184.—Triangular Wash-stand.
Fig. 185.—Chest of Drawers.

and a curtain; but this arrangement is apt to be untidy, the curtains being soon rendered dirty and crumpled by careless handling.

There is one point on which a mistress should lay emphasis when arranging the daily work, and that is, that the servants' rooms should be properly attended to in the same way as those of the family. Although she should, as a rule, be as chary of entering her servants' bedrooms as she would be those of her guests, she must satisfy herself that this regulation is carried out, and that the rooms are neat, clean, and aired. A couple of sponge-baths should be provided entirely for the servants' use. In many modern houses a bathroom is set apart for the sole use of the servants.

Few persons of moderate means are in a position to allow their maids a sitting-room to themselves, and when not more than three servants are kept it is quite unnecessary to make such a provision. Indeed it is open to doubt whether the privilege is as much appreciated as is generally supposed, for it involves a good deal of extra work. If there is a third sitting-room not

regularly occupied by the family, it is only kindly to allow the maids to sit there in their leisure time, if they are so disposed, but it will probably be found that they will rarely take advantage of the concession.

The kitchen should certainly be made as comfortable and cheerful as is compatible with its main uses. A high dado of a neat varnished paper, with distemper above, a pretty linoleum on the floor, and a rug or two and some table-covers for use after the rough work is done—all these help to take away from the dreary unfurnished look common to so many kitchens. Windsor chairs with arms are comparatively inexpensive, and seat cushions in tidy button-on-cases of washing cretonne need not cost very much. A couple of carpet-seated folding-chairs may be provided for use in the evening, on condition that they are kept folded up during the busy time of the day.

Food.—In an ordinary middle-class establishment it is best to make as little difference as possible between the meals of the servants and of their employers, but it should be distinctly understood, that if the mistress chooses to give an order that a certain dish is to be reserved for the dining-room this is not to be resented as an encroachment on the rights of the kitchen. In many houses the kitchen breakfast consists only of bread and butter and tea or cocoa, but this is rather poor fare, especially in the winter, for a young woman to begin a heavy day's work on, and it is advisable to allow some simple addition, such as eggs, bloaters, or boiled bacon. Maids are apt to be very wasteful with fried bacon, and if given, it should be on the allowance system, which is not desirable in small establishments. If the breakfast is substantial and dinner is not later than 1.30, the eleven-o'clock "snack" which prevails in most houses should be unnecessary. The bill of fare for the kitchen dinner is generally the same as that of the dining-room lunch, but care should be taken that there is a sufficiency of wholesome plain food, including a good substantial pudding. Servants as well as their social superiors have likes and dislikes concerning food. A wise and kindly mistress will endeavour to consult their reasonable tastes, but those who "can't abide cold meat", or "never touch made-up dishes", should be gently but firmly shown the error of their ways. Curiously enough, girls who come from the poorest homes are often the hardest to please; in most cases they simply affect a fastidiousness they do not really feel, and if the mistress is firm, their various dietetic idiosyncrasies speedily vanish.

Many employers, however, fail to realize that servants often prefer a more highly seasoned, coarser style of food than appeals to cultured palates. Liver and bacon, pork, tripe, stuffed sheep's hearts—all these and many other dishes of the same kind are often liked, and there is no reason why they should not be allowed occasionally. But if the idea gains ground that economy is the sole motive for giving them, there will probably be trouble. It is no longer universally the custom to allow beer, but milk, cocoa, and home-made lemonade may, if possible, be granted in addition to the usual tea. Beer-money should never be given. "Stewed

tea" is a beverage dear to the heart of the average maid, and in most kitchens the little black tea-pot stands on the hob all day. It is shockingly unwholesome, of course, and, together with sleeping in a stuffy atmosphere and eating at odd hours instead of at the proper meal-times, is responsible for much indigestion and general ill-health. This excessive tea-drinking, however, is a practice almost impossible to check even by the exercise of the greatest tact.

Meat is not necessary at supper, although, of course, if there happen to be any remnants left from the late dinner, which will not be wanted again, they may be used up, with the mistress's permission. Eggs and simple light inexpensive puddings may be added to the supper bill of fare, without increasing the cost alarmingly, and in a well-managed household, where the merits of the stock-pot are properly understood, a supply of nourishing soup should always be available.

Some cooks are very careless about the preparation and serving of the kitchen meals, but the mistress should stipulate, when engaging a new one, that the table be properly laid and the meals regularly and comfortably served, also that the kitchen should be tidy in the afternoon.

Servants' Allowances.—When allowances are made, the weekly quantities for each servant are usually arranged as follows:—Tea, ¼ lb.; sugar, 1 lb.; butter, 1 lb. If bacon and cheese are allowanced, about 1 lb. of each is given, or rather less of the latter. In a small family, where from one to three maids are kept, it is seldom advisable to have different qualities of such things as tea, cocoa, sugar, and butter. Possible discontent is avoided by having exactly the same things upstairs as in the kitchen, and the extra cost is not very important.

Leisure.—A conscientious mistress, who is not content to regard her maids as mere machines, but feels she has some responsibility for their mental and moral welfare, is often puzzled to know how she may best induce a girl to spend her leisure hours to advantage. Servants are so jealous, not unnaturally perhaps, of any interference with what they consider their "liberty", that they are apt to resent the best-meant efforts to provide wholesome recreation for them. With the manner in which a maid spends her "evening out", or her monthly holiday, her mistress cannot interfere unless she has good reason to believe it is actually discreditable. But if she takes into her service a young maid from a distance, she should certainly try to ensure her making the acquaintance of respectable girls, especially where there are no fellow-servants. Moreover, the "evening out" should not be granted to a young and inexperienced girl until she has found some suitable friends in the district. However inconvenient it may be to allow her to go out earlier in the day, the mistress should strain a point to do so, for much grave harm is often caused by letting a young girl, fresh perhaps from her quiet country home, wander about the streets of a strange town late in the evening.

Servants come from a class given to making acquaintances in rather a hap-hazard and guileless fashion, a habit that is dangerous in more ways

than one. In many quiet households it is possible to allow them to take a short walk during some part of every day in the summer, and twice or thrice weekly during the winter, and this regular exercise is far better for their health than roaming about the streets at night, or sitting in other people's kitchens. Unfortunately it is not to every servant that such concessions can be made; and also it must be remembered that they naturally prefer to be out in the evening, when their friends are more likely to be at liberty. Here discretion must be exercised.

Has a mistress any right to insist on her servant attending a place of worship once at least on Sunday? If such a stipulation has been made upon engagement, the answer is, obviously, Yes; but otherwise, according to modern ideas, No. It must never be forgotten, however, that every mistress stands *in loco parentis* to girls placed in her charge; she is morally, though not legally, their guardian so long as they remain under her roof; if she bears this fact in mind it will help her to solve all such questions for herself.

In these days of cheap literature it is all but useless to attempt to prevent servants from filling their heads with the contents of rubbishy novelettes, which, if not absolutely immoral, are very nearly as harmful, by reason of the completely false and distorted views of life presented to their easily-impressed minds. But a tactful mistress may do something to influence a girl's taste towards better things by lending, not forcing upon her, carefully-chosen, wholesome, interesting tales, not tracts thinly disguised, nor stories specially intended for young servants. The better-class magazines should be allowed to find their way into the kitchen whenever possible, and there is no reason why the daily paper should not be read there after the work is done.

Dress.—A servant's costume should be, above all things, neat; her hair should be well brushed and carefully arranged; and when she comes downstairs in the morning she should be as tidy and clean as if she expected her mistress to be awaiting her at the bottom of the stairs. If she rushes down half-clothed and wholly unkempt, she certainly is not the "domestic treasure" that every housekeeper is in search of. It is desirable, though not always practicable, that all the servants of a household should wear caps and aprons of the same style, but if such a rule is adopted it is obviously only fair that the mistress should supply them. Big working-aprons and stout but not noisy shoes, such as the rubber-soled ones worn by hospital nurses, are essential. With the outdoor dress, except in the case of children's nurses, few modern mistresses deem it possible to interfere, although in some large establishments certain regulations obtain. A mistress can, however, often exert good influence over a young servant in the matter of her general attire, encouraging her to buy strong and useful rather than showy things, to make at least some of her own clothes, and to supply herself with a good stock of plain, warm underwear, which few of the younger generation possess. Then again a servant should, if possible, be persuaded to save something out of her wages. Many girls who are not lavish in their personal expenditure are inclined to be almost foolishly generous, giving away

every shilling they possess to relations who are not infrequently much less in want of the money than themselves. It should be impressed upon every servant that it is her duty to herself to put by a few pounds towards a rainy day, or towards her marriage outfit.

Perquisites and Visitors.—Perquisites should be absolutely forbidden. To this rule there can be no exception. Not a bone nor an ounce of dripping must be sold. What cannot be used in the family cooking should be given to some deserving poor person indicated by the mistress. The pig-tub is another institution which should not exist in a well-regulated establishment. Even in country houses where pigs are reared it is objectionable, and needs close supervision to prevent abuse. Christmas-boxes given by tradesmen to servants are now illegal, and were always a mistake; the heavier the bills the bigger was the "tip", making it the maid's interest to increase the expenses. As few tradesmen as possible should be allowed to call for orders; it is rarely necessary that they should do so, and the mistress should make a point of paying her weekly books herself, every unaccountable increase in the bills being noted and inquired into promptly. The visits of those nuisances, the old-bottle men and rag-and-bone merchants, should be strictly forbidden, as they have a trick of carrying away more than their purchases. A card with the words "No Bottles" should be conspicuously displayed.

The question of visitors is a delicate one to deal with. Whether "followers" should be allowed or not is a problem which generations of mistresses have not been able to solve. On the face of it, it certainly seems less objectionable that a young woman who is engaged to be married to a respectable young man should be permitted to entertain him in the kitchen one evening in the week than that she should wander about the streets and lanes with him. But, unfortunately, the line between a legitimate engagement intended to end in matrimony and the mere "keeping company" with a strange youth picked up promiscuously is so ill-defined that such a privilege can rarely be granted without risk of its abuse. It should be made clear when a servant is engaged that although she may occasionally invite her father, mother, or other near relations to visit her, she cannot be permitted to have visitors perpetually "dropping in", neither may she invite anyone to a meal without obtaining permission. These rules will be found particularly necessary if the maid's kith and kin live within very easy reach of her place of employment, for even if she herself is sufficiently sensible to understand the objections to their frequent visits, the friends themselves are often much less considerate. Still, if the mistress is wise and kind-hearted, she will give a servant reasonable facilities for seeing her own people, and furthermore will show an interest in them, encouraging the girl to talk about them, for if single-handed her life must perforce be a very dull one. A tendency to idle chatter need not be fostered, yet between this and the absolute reticence which some ladies expect their servants to observe there is a wide gulf. It is possible to show some interest in a maid's affairs, her joys and sorrows, troubles and pleasures, unimportant as they may seem, without loss of dignity. Gossip between mistress and maid,

and a Christmas present should at any rate be tolerably attractive to the eye. A set of initialled handkerchiefs in a pretty Japanese box, a neat silver-mounted purse with perhaps a piece of money in it, a smart umbrella, or a nice little work-basket—such things as these will cost but little, if anything, more than the "serviceable" linsey-woolsey or the sober-lined petticoat, but they will be infinitely better liked by the recipient, especially if each gift is neatly tied up with gay ribbon and accompanied by a pretty card or calendar. It is not so much the actual value of the gift that appeals to the maid, but the fact that its nature shows that "missus" took some pains over its choosing.

Wages.—Wages still vary much in different localities, although the upward tendency is steady and universal. In most country places from £10 to £14 is the usual amount to pay a "general", while in London and its neighbourhood the same grade of servant would ask and obtain from £15 to £20. A house-parlourmaid rarely gets more than £15 or £20 in the provinces, whereas in a large town she might be paid as much as £20 or £25. The wages of a "plain" cook range from £18 to £25, while a "good plain"—or "good soups, *entrées*, and pastry", to quote the advertisements—can command anything from £25 to £100. Wages are usually paid monthly, but in some establishments quarterly or half-yearly payments are the rule, and in a few old-fashioned houses the custom still prevails of having a yearly pay-day only. When this latter plan is adhered to, "advances" are made to the servants at regular intervals. It is best to give a yearly rise up to a certain sum, fixed on engagement, rather than to begin with the maximum. The washing allowance ranges from 1*s.* to 1*s.* 6*d.* per week. If elaborately-trimmed white aprons and caps are expected to be worn, and frequently changed, the higher sum will not be too much.

When servants are left in the house during the absence of the family they are usually put on board-wages. These range from 8*s.* 6*d.* a week in country houses, where vegetables, milk, &c., are supplied free, to 12*s.* 6*d.* in town establishments managed on a fairly liberal scale. If the house is closed when the family is away, and the servants have to find their own accommodation, either their fares should be paid to their homes or an extra

allowance made for the cost of their lodgings. A mistress should make certain, as far as she possibly can, that they will be in comfortable and respectable quarters during her absence. Although there is much to be said against leaving young servants alone in a house, yet, on the other hand, it is not right to turn them out to seek a temporary dwelling without taking some pains to ensure their comfort and safety. When several are left in a house it is usual for them to club their funds and intrust the cook with the general management and catering, but this, of course, is a matter for themselves to arrange.

Servant's Illness.—The illness of a servant, even where a number are kept, is a sufficiently serious matter, but when one or two make up the entire staff, a complete disorganization results. In such cases the mistress has to find temporary and generally unsatisfactory help, or to do the work herself, besides looking after a patient who is often exceedingly difficult to manage. When the illness is likely to be long and serious, it is truest kindness to send the servant to an hospital, unless the resources of the house are quite equal to the strain on them. The responsibilities of the mistress can scarcely be considered to end at the hospital door, however, for it is her duty to ensure, to the best of her ability, that the maid, even if she is not returning to her service, has proper provision made for her until she regains sufficient strength to resume her work. A friendless girl necessarily discharged from a crowded hospital before she is fit to earn her own living, is in a very sad position indeed.

That the modern servant often requites her mistress's care and kindness very badly is undeniable. Yet this fact in no way lessens the employer's responsibilities, and when all is said and done it is the household where the servants are well and justly treated, neither petted nor overworked, unduly indulged nor incessantly scolded, that is most thoroughly comfortable and satisfactory from every point of view.

The extension of the provisions of the Workmen's Compensation Act to cover domestic servants renders all persons living in private houses or flats liable to pay compensation to servants in their employment for personal injury caused by any accident arising out of and in the course of their employment to the following extent:—

Maximum liability on account of fatal accident, £300.
Maximum liability on account of temporary or permanent disablement, one-half of the earnings, not exceeding 20*s.* per week, during the entire period of incapacity.

This would mean so heavy a responsibility as would suffice to deter many families from employing domestic servants at all, but that the insurance societies come to the rescue of the householder with policies relieving him of all such responsibilities. The rates of premiums are as follows:—

Tutors, governesses, housekeepers, butlers, cooks, maids, general and other indoor servants, 2*s.* 6*d.* each per annum.
Minimum premium, 3*s.*

Gardeners and footmen, 5*s.* each per annum.
Coachmen, grooms, excluding hunting accidents, 7*s.* 6*d.* each per annum.
Gamekeepers, 10*s.* per annum.
Chauffeurs, 20*s.* per annum.

Insurance companies issue policies providing complete indemnity to employers against claims for accidents under the Workmen's Compensation Act, 1906, the Employers' Liability Act, 1880, and the Common Law and Fatal Accidents Act, 1846.

SERVANTS AND THEIR DUTIES.

THE HOUSEMAID.

Her Dress.—The housemaid's dress (fig. 186) should be neat and quiet in appearance. For morning wear there is nothing more suitable than a simple washing print, with plain cambric bib-apron, a muslin cap with goffered frill, and a straight linen collar. In addition, a large bedroom-

Fig. 186.—Housemaid's Dress.

apron of coarse linen should be worn during the upstairs work of dusting, &c. This can be slipped off in a moment when its wearer is called down-stairs.

For an afternoon dress the orthodox attire is black wool material, and this is agreeably completed by a Normandy cap of soft muslin and lace—or of guipure—without a crown, and with French strings; turn-over stiff linen collar and cuffs, tied with narrow black ribbons; and a cambric apron with horse-shoe bib trimmed with guipure embroidery and having wide French

sash-strings. If desired, braces of guipure can take the place of a bib. The skirt should be severely plain, the sleeves close-fitting, and if the bodice is slightly fulled it should be belted with petersham.

The sooner the housemaid realizes the fact that in her quiet uniform, which has a distinct style, she is more becomingly equipped than in an imitation of her mistress's dress, the better it will be for her. Cleanliness and freshness are the points to which she must pay strictest attention, especially in regard to aprons, on the condition of which much of the neatness of her appearance depends.

General Duties.—The duties of the housemaid, although practically the same in every household, are regulated to a certain extent by the number of servants. Under all circumstances the care of the bedrooms and stairs devolves upon her, but where a parlour-maid is kept, her duties will not necessarily extend to parlour work and waiting at table; nor will she have the care of the dining-room plate. She is, however, usually required to hold herself in readiness to assist in the serving of meals.

In households with only a cook and a housemaid the work of the latter extends to almost every room occupied by the family. She is expected to do both the upstairs and downstairs work, answer all bells, attend to visitors, and keep the house clean and airy. She also has charge of the plate and keeps up all fires.

It is usual, in the circumstances, for the cook to take charge of the hall and one of the sitting-rooms, as well as wash the front door-steps, polish the knocker and door-handle, and clean the gentlemen's boots. If, however, a parlour-maid is retained, all this work will fall to the lot of the housemaid, who must, therefore, be prepared to undertake it.

Early rising is essential. If the housemaid does not get through a certain amount of work before breakfast she will probably be behindhand throughout the day, but if she is systematic her labours will be lightened and she will have some spare hours to herself. She should divide her work into portions, and set aside certain days for occasional work. Punctuality in answering bells and in taking the early morning hot water to the bedrooms is as necessary as are early rising and methodical work. Much of the comfort of the family depends on her.

Other very important points which she must bear in mind are always to deliver cards, letters, telegrams, and money on a salver. She must never be guilty of dropping such things as tea-leaves, the contents of hair-tidies, and match-ends down the sink or grating of a bath, for they will assuredly cause a stoppage in the waste-pipe. The fault of leaving a slop-pail about is inexcusable. The habit is not only unpleasant but extremely dangerous.

The housemaid should be quiet in manners, always respectful, and should never give her mistress cause to remind her to do her regular work. As the repairing of the household linen devolves upon her, she should keep her work-box well stocked with cottons, and a bag of pieces of linen and calico should be at hand for patching. Any article that is torn and badly worn should be at once transferred to the mending-basket.

Daily Duties.—The housemaid's daily duties are to:—

Dust and arrange the sitting-rooms and bedrooms, hall and passages.
Attend to the grates.
Sweep the carpets and stairs.
Wash the front door-steps.
Answer all bells after luncheon or early dinner.
Lay the cloth and serve all meals.
Wash up china, glass, and plate in use.
Attend to lamps, candlesticks, and lights generally.
Clean ladies' boots and shoes.

Weekly Duties.—Her weekly duties are to:—

Thoroughly turn out and clean each room.
Polish furniture and stained boards.
Clean and polish plate and brasses.
Prepare soiled linen for the wash; air and distribute fresh linen.

Occasional Work.—About once in every four or six weeks the housemaid should:—

Wash brooms and brushes.
Take up stair carpets and wash the stairs beneath.
Clean out the pantry.

The Housemaid's Box.—The housemaid's pantry and its contents are described in Vol. I. It is therefore only necessary to say here that her box should contain:—

One set of brushes—one round brush, one hard brush, and one soft brush for polishing; a gallipot and black-lead; a steel cleaner; leather gloves; brass polish; emery-paper; leather for polishing stair-rods; hearth-brush; hearth-sheet; shovel; wood, paper, and matches.

Stoves and Fire-irons.—The housemaid should rise at six o'clock. Her first duties are to open the shutters of the sitting-rooms, draw up the blinds, throw open the windows, and prepare the breakfast-room. As it is usually considered the better plan to attack the dirtiest work soonest, she must begin by attending to the fireplace. The hearth-rug should not be merely folded and set aside, but should be rolled up and taken away to be shaken, a canvas hearth-sheet being laid down in front of the fireplace. On this the housemaid sets her box containing the requisites for cleaning the stove. Putting on her wash-leather gloves, she must sweep from the chimney with a broom any loose soot that may have accumulated round the top of the grate. If this is done daily, the weekly labour will be lessened. The cinders must be raked out and put into a cinder-pail (which is usually of japanned tin with a wire sifter), or into a newer invention, the cinder-sifter (fig. 187). The cinders should be reserved for kitchen use.

When the stove, bars, and hobs have been swept free from dust, black-lead mixed to a thin paste with water or vinegar, and put into a gallipot, should be applied. A little of the black-lead mixture should be brushed over a portion of the stove and rubbed in briskly and lightly with a polishing-brush, one part being thoroughly finished before the next is begun, and all

the corners being worked into with the bristles at the end of the brush. Some housemaids use three brushes for black-leading—a round brush for applying, a hard one for rubbing, and a softer one for polishing.

Steel parts of the stove and fire-irons will remain bright if they are rubbed over daily with a plate-leather, powdered bath-brick being used once a week. If they happen to get rusty, cover them with sweet-oil and either bath-brick or rotten-stone, allow it to remain on for twelve hours, and afterwards polish with a leather. The steel cleaner should be in daily use for fire-irons, and emery-paper for the bars of the grate, and the stove should be varnished with Brunswick black as often as necessary.

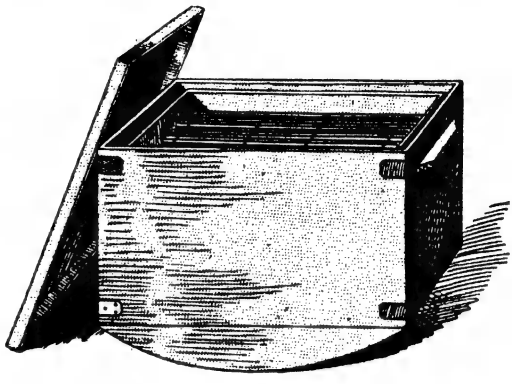


Fig. 187.—Cinder-sifter on Rockers.

Tiled hearths need only a flannel and water to keep them clean, but when the hearth is of white stone the same recipe should be used as given later for washing the front door-steps.

When the stove is finished, the fire must be laid, and lighted if required. (Directions will be found under "Heating and Lighting", Vol. II.) The rug must then be brought back, and the coal-box filled, unless the cook does this by arrangement.

Brass Fenders.—Ordinarily, a wash-leather and rotten-stone are sufficient to polish a brass fender, or brass of any description, but when it is very dirty or tarnished the rotten-stone should be moistened with sweet-oil, and the brass, after this application, should be polished with dry whiting and a leather. Bath-brick is also excellent for cleaning brass. It should be scraped to a powder with a knife, mixed with a little water, and rubbed on with a soft cloth, the process being completed by means of a plate-leather. All brass and copper articles can be cleaned in the same way.

Sweeping Carpets.—After attending to the stove, the housemaid should remove her box and sweep the carpet. It should be strewn with damp, but not too wet, tea-leaves, from which the colour has been extracted (otherwise they would stain) by putting the leaves in a fine sieve and rinsing them under the tap, moving them about and squeezing them.

Carpets require light sweeping and soft brooms. They should not be swept oftener than once a week with a stiff carpet-broom. For daily use, a long-haired brush, which raises less dust and is not destructive to the pile, or a carpet-sweeper, is better.

Sweep always in the same direction, and the way of the pile. If the broom is used in contrary directions, crumbs and dust will be forced into the pile, which will consequently look rough and dirty. Sweep towards

the door or towards the centre of the room, according to the way of the pile, and collect the flue in a dust-pan, using a small hand-broom.

If the carpet is faded or soiled it is a good plan to grate one or two raw potatoes in water, and sponge the mixture over the faded parts. Or the carpet may be scoured with ox-gall and soap-and-water, and afterwards rinsed with fresh water. The objection to this process is that it is apt to leave an unpleasant smell. When it is possible for the carpet to be taken up and spread on grass, so much the better. In any case, wipe it dry with a cloth. Of course, when it requires cleaning in this way the work must be reserved until later in the day.

Skimmed milk will remove fresh ink-stains from a carpet. Older stains should, if the colours of the carpet are fast, be rubbed with salt and vinegar mixed, the mixture being washed off with soap and plenty of water.

When the carpet has been thoroughly swept, the furniture brushed, and the hearth-rug brought back to its place, any ornaments which are on the mantel-piece or in other parts of the room must be dusted.

Dusting.—The inexperienced servant's idea of dusting is to flick a dry cloth over tables, chairs, and ornaments, regardless of the fact that she is merely raising the dust to settle again. She dusts the ornaments without moving them, or lifts them, perhaps, just to pass the cloth on the shelf beneath. This is how not to dust.

The first-class housemaid proceeds differently. She works with a couple of cloths, one damp and the other dry, and removes all the articles, one by one, from where they stand, wipes them with the damp cloth, and sets them aside until she has passed the same cloth over the mantel-piece, sideboard, or dressing-table, as the case may be, and has dried and polished it. Then she wipes each ornament with the dry cloth, polishes it with a leather, and replaces it.

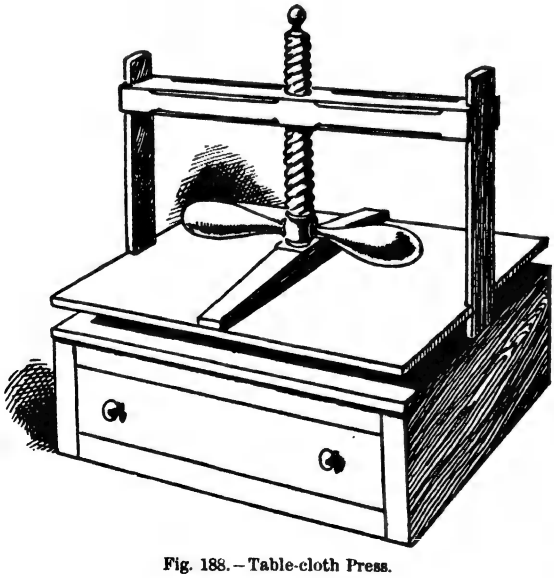
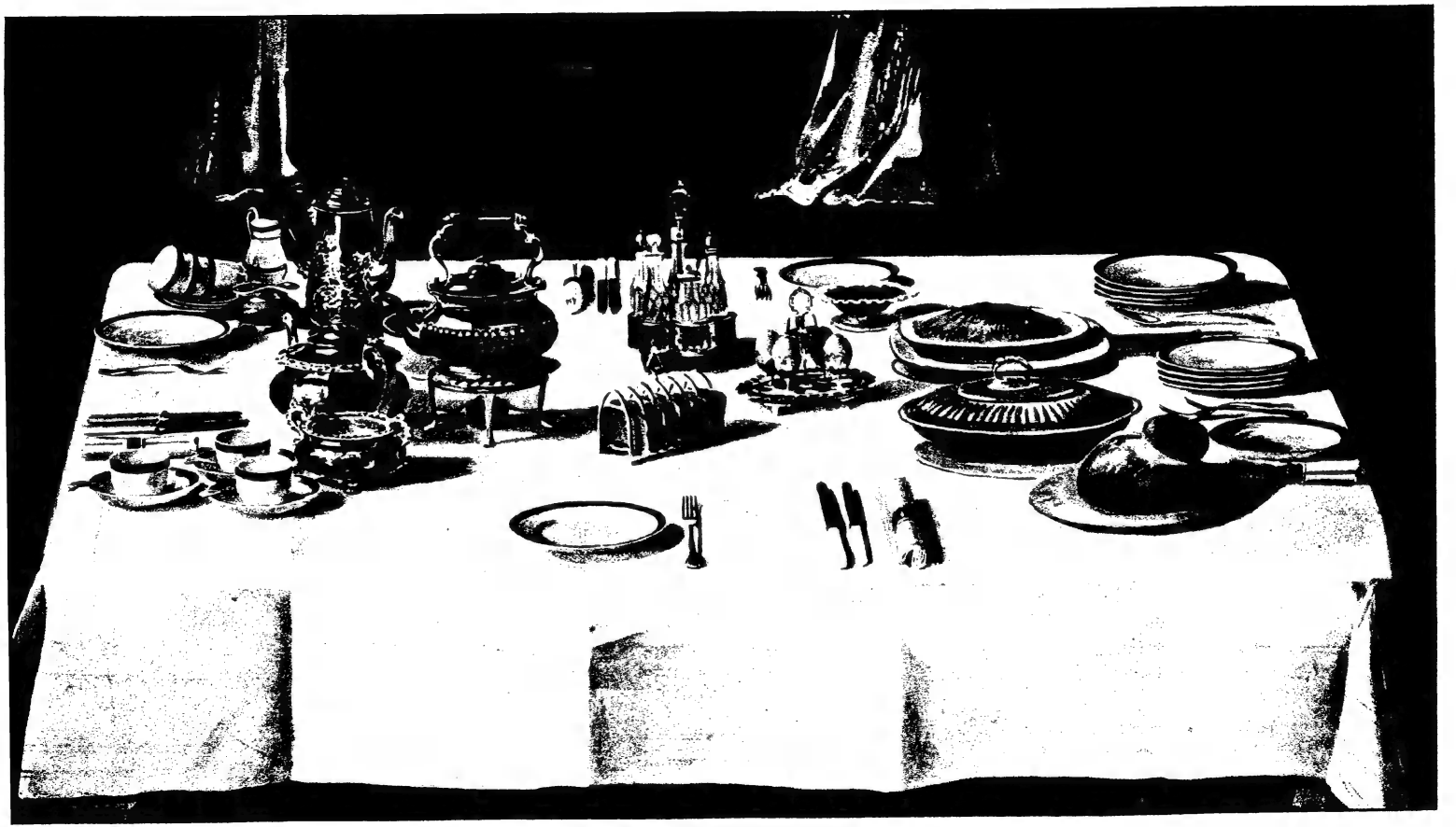


Fig. 188.—Table-cloth Press.

After dusting and arranging the breakfast-room, the housemaid must clean the ladies' shoes and leave them, together with cans of hot water, outside the bedroom doors. When she has called the various inmates of the bedrooms, she must set the family breakfast-table, have her own breakfast, dust and sweep the hall, and begin to dust the second room, unless the hall and that room fall within the cook's province.

Laying the Cloth.—Between meals the table-cloth should always be



BREAKFAST-TABLE.

otherwise crumbs are apt to be scattered upon the carpet. When the cloth is cleared, any fragments of bread should be swept into the crumb-tray, which must be held well under the edge of the table so that no crumbs escape and fall upon the ground. It is better to work cautiously and slowly than quickly and clumsily.

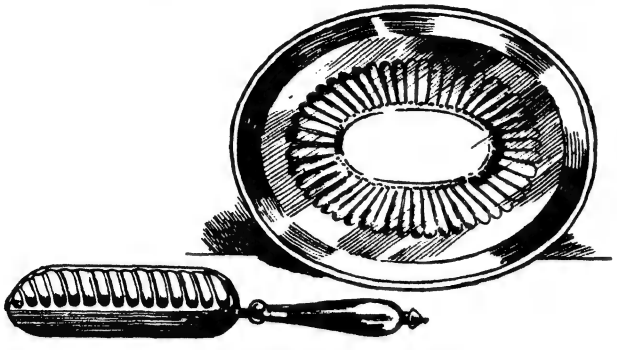


Fig. 190.—Crumb Scoop and Waiter.

To Wash Stone Steps.—After the breakfast-room has been arranged in order, the housemaid will probably be required to wash the front door-steps, for which purpose she takes her wooden pail, three parts full of water, a flannel, a cake of hard hearth-stone, and a knee-pad.

The steps must be first swept, then washed with the flannel and water, and finally rubbed with hearth-stone, worked lengthways—to right and left—very smoothly and gently. If moved in circles it only leaves the steps, when dry, in a streaky condition. After using the hearth-stone the flannel must be wrung and passed lightly over the steps. When they are much discoloured a little soda should be put in the water, and they should be rubbed firmly with the hearth-stone until they are white. It is always advisable, after the block of hearth-stone has been used, to wipe it with the flannel in order to remove any dirt.

The hearth in front of a grate should be washed in the same way.

Beds.—Having washed the front door-steps and polished the knocker and handle (if they are of brass, in the method described for Brass Fenders), the housemaid proceeds to the bedrooms, throws open the windows, and airs the beds; after which she makes them, and arranges the bedrooms one by one.

Airing beds and bedding is most important, and should be thoroughly performed every day. The beds must be stripped of all clothing, which should be thrown back across a couple of chairs or over the rail at the foot of the bed, care being taken that the sheets do not drag on the floor. Mattresses, bolster, and pillows must be shaken and beaten, and any lumps among the stuffing dispersed; and mattresses should also be turned up and brushed with a bed-whisk (fig. 191) and "button"-brush (fig. 192), and if any feathers are escaping from any part of the bedding they should be pushed back and the seam of the tick sewn up.

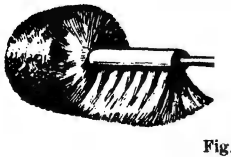


Fig. 191.—Bed-whisk.

When the bedding has been aired, the housemaid proceeds to make the bed by putting on first the under-blanket and under-sheet and tucking them round the mattress—except the top of the sheet, which is left loose for the admission of the bolster, round which it is rolled; then the pillows, upper-sheet, blankets, and counterpane are put on in turn. The under-sheet is always put on right side uppermost, the upper-sheet the reverse way. The broad hem of a sheet should be at the top. The counterpane hangs down at each side of the bed, and is drawn up at the top over the pillow, until the housemaid visits the bedrooms in the evening, when she turns back the top of the counterpane and draws the sheet over it.

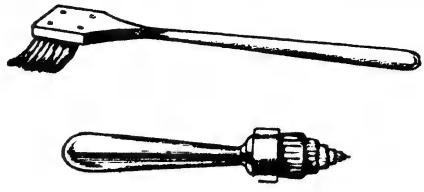


Fig. 192.—Brushes for "Buttoned" Upholstery.

Airing and Arranging Bedrooms.—In airing bedrooms, or indeed any rooms, it is not sufficient that the window should be opened at the bottom. It should also be opened at the top, as bad and heated air rises and passes out at the top, while the fresh cool air comes in at the bottom. Windows should remain open for a couple of hours every day. For thorough ventilation the door should be open as well.

After attention has been given to the matter of airing, the housemaid's duty is to shake out and either hang up in a wardrobe or fold and put in a drawer, any clothes that are left about; to hang the towels evenly on the rail, empty the slops, attend to the requirements of the wash-stand, re-arrange the dressing-table, and re-line the tidy with fresh paper. If fires are required in the bedrooms the stoves must be attended to at once, and everything should then be dusted.

The slop-pail, which should be of enamelled ware, ought to be reserved for bedroom use. It must be emptied immediately and scalded. In the arrangement of the wash-stand the sponge should be squeezed and placed in the basket, the nail- and tooth-brushes shaken and put, bristles downwards, in their proper places, and the ewers and carafes emptied, wiped, and refilled. For this latter purpose the housemaid should carry upstairs two cans, the one filled with soft water for the ewers, and the other with cold spring-water for the carafes.

After the basins have been emptied they should be rinsed with fresh water, to take away any fur that lingers round them, and wiped with a clean cloth; and any vessels that need it should be scalded and disinfected. Special cloths should be kept for special purposes, the coarser bedroom cloths being rinsed out every day.

After the soap-dish and top of the wash-stand have been washed and wiped, the tumbler inverted on the carafe, and all utensils replaced, everything on the dressing-table and mantel-piece, as well as the ornaments and furniture, must be dusted, and the floor swept. The bed-valance should be tucked up, and the flue from underneath the bed be removed with a damp mop.

Before leaving the room the housemaid should attend to the candlesticks. They should be emptied of match-ends and refilled with matches when necessary. When grease has collected in the sockets it should be taken out with a pointed piece of wood, and any that remains should be melted off. The candlesticks should then be washed, as usual, with hot soap and water.

All this is part of the daily programme. Once a week the housemaid should clean and dust each bedroom more thoroughly. After she has made the bed she should brush the curtains and blinds, roll up and loop back the ends of the curtains, dust the ornaments and lay them on the counterpane, shake the toilet-covers, fold them and lay them also on the counterpane, and cover the bed with a large dusting-sheet. She should stand the empty ewer in the basin, and remove it from the room, together with the carafe, or cover both with a cloth. Blinds, ceilings, and walls should be swept, windows, window-ledges, and paint-work dusted and washed, and any upholstered furniture and rugs removed and beaten. The room should be cleared as much as possible before it is swept and scrubbed. In due time the curtains should be unlooped and everything put back in order, such things as gas-globes having been washed, and wardrobes and other furniture polished.

There are some general rules to be observed with regard to bedroom cleaning. Various details are appended.

Scrubbing Floors.—In preparing to scrub a bedroom floor the bedstead should be shifted, so that the floor beneath may not be neglected. Then the housemaid should strew the boards with damp tea-leaves, sweep them up and carry them to the bin, and bring her wooden pail with hot water, her knee-pad (fig. 193), flannel, scrubbing-brush, and common yellow soap. Kneeling on the pad, she should wet as much of the floor as she can reach, using the flannel and beginning at the part farthest from the door, working backwards. When the boards are very much soiled, a little sand may be used to whiten them. They should be scoured straight up and down, with the grain of the wood.

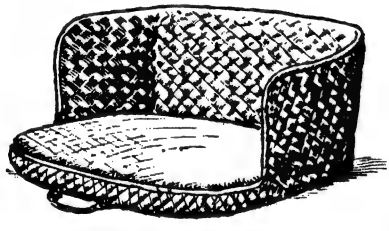


Fig. 193.—Housemaid's Knee-pad.

After the soap and scrubbing-brush have been used, the floor should be rinsed with flannel and plenty of water to take away any soapy mixture that remains on the boards, as that would give them a stained appearance when dry. Then the flannel should be wrung and passed over the boards again. The water in the pail should be changed often, the oftener the better. It may seem a truism to say that nothing can be cleaned with dirty water, but many servants seem to think otherwise. A small lump of soda in each pailful will improve the colour of the boards.

It is a good plan to have a second (small) pail at hand containing cold water with a little carbolic acid, and to give the final rinse with this solution. It sweetens the air and keeps the boards fresh.

Grease spots can be removed with dried fuller's-earth mixed to a paste with hot water. It should not be applied till cold, and should be allowed to remain on for some hours—until it is quite dry—and then scoured off with fresh water.

Cleaning a Marble Wash-stand.—Soap and water are, as a rule, sufficient to clean marble, but when it is much discoloured something stronger is required. Take a mixture of crushed soda, pumice-stone, and finely-powdered chalk—two parts of the first to one part each of the other ingredients. Sift it through a fine sieve and mix it into a paste with water. Rub the marble with some of the preparation, wash it off with soap and water, and polish with a cloth.

Cleaning Ceilings and Walls.—Ceilings should be swept with a turk's-head broom (fig. 194), to keep them clean and free from cobwebs. All the corners should receive especial attention, the cobwebs being not only disturbed but also removed. If there is gas in the room a protector should be fixed above each jet, to prevent discoloration of the ceiling.

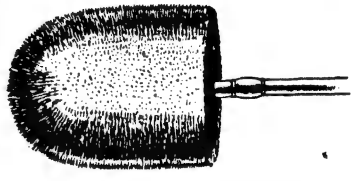


Fig. 194.—Turk's-head Broom.

Walls should also be swept with a turk's-head broom, or special wall broom (fig. 195). If papered, they should not be washed—unless a special washable paper has been used,—but when soiled should be rubbed down with stale bread-crumbs. A distempered wall soils very easily. It should be dusted every day.

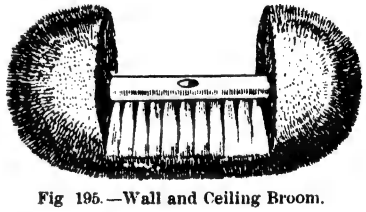


Fig 195.—Wall and Ceiling Broom.

Cleaning Paint.—Painted wainscots, ledges, and other wood-work should be washed with warm water, a flannel, and yellow soap. No soda should be used, as this might disturb the paint, which should be washed lightly and wiped dry with a soft cloth.

Windows and Mirrors.—The following directions should be observed with regard to cleaning windows and mirrors. First, thoroughly dust the pane and glass of a window, using a light brush and working into each corner with a pointed stick. Then wash the frame with a wet flannel and dry with a cloth, after which rub the panes with a chamois skin wetted in clean cold water. Rub off any marks, rinse and wring the leather, and pass it briskly over the panes again, afterwards wiping them with a clean, soft linen cloth, and finally polishing them with a dry leather or an old silk handkerchief. The upper panes should be cleaned and polished before the lower ones are touched. Finally, the leather should be wrung and shaken and hung up to dry. The outside panes should be cleaned in the same way, the housemaid being careful to sit firmly as she puts the top sash down and pushes up the under one. Plate-glass is improved by dusting over it a little finely-powdered stone-blue before giving the final polish.

When glass is soiled it should be sponged with spirits of wine, or gin, and water, or with whiting mixed with gin.

Picture-glasses and mirrors should be cleaned in the same way as windows, powdered blue, tied in muslin, being used towards the finish. Fly marks are quickly erased with gin or other spirit.

Gilt Frames.—In cleaning mirrors and picture-glasses, care must be taken that the frames, if gilt, are not touched by damp sponges or leathers. As a rule they need only to be dusted carefully. When, however, this is not sufficient, linseed-oil should be applied with a brush.

Oil-cloth.—After the bedrooms have been attended to, the passages and bath-room must be dusted, swept, and arranged, all taps cleaned (as described under "Brass Fenders"), and oil-cloth washed. Old or new, oil-cloth should never be scrubbed, and should not be cleaned with hot water or soap, both of which are likely to disturb the colours. After it has been swept with a soft brush the oil-cloth should be washed with lukewarm or cold water, and when dry sponged with milk, which will give a brilliant polish if the oil-cloth is afterwards rubbed with a clean dry cloth.

Stairs and Stair-druggets.—When the bath-room is completed, the housemaid's next duty is to sweep the stairs and stair-druggets. She should close all the doors of such bedrooms and sitting-rooms as are likely to be affected by the dust aroused. The correct way of sweeping the stairs is to begin at the top and work downwards, one step at a time, using the small hand-broom and catching the dust at the edge of each step in a dust-pan.

When the stair-drugget is to be taken up, the first thing to do is to remove the brass rods from their sockets, and then lift the drugget as gently as possible in order to avoid disturbing the dust. The best way is to roll it, and carry it thus into the open air to be swept, beaten, and rubbed with a damp cloth.

The position of the drugget, when it is put down again, should be shifted, so that the tread does not come at the same spot year in and year out. For this reason a stair-drugget should always be longer than is actually required, the extra length being doubled underneath at each end.

The banisters should be dusted and brushed every day, and rubbed and polished when occasion demands. When the drugget is taken up, the imprinted wood of the stairs should be scrubbed with warm water and yellow soap, and the stained borders rubbed with bees'-wax and turpentine. (For further directions about stained wood see the hints given later under "Stained Boards".)

Washing China.—When the stairs are completed it will be necessary for the housemaid to wash up the breakfast-things, which she has removed to the pantry. Two enamelled pans should be used, one filled with hot—but not boiling—water, with, if necessary, a little soda, and the other containing warm water. The cups, saucers, and plates should first be dipped into the hot water to melt the grease, and then washed with a small mop and rinsed in the warm water. They must be very carefully

handled, and should be placed gently into each pan. They should then be very carefully dried. Dregs of tea or milk should be emptied into a slop-basin before the cups are put into the first pan.

When this method of washing china is followed, tea-cloths last clean very much longer than they would under other circumstances. They should be hung up to dry immediately after use.

Sitting-rooms.—On certain days it will be necessary for the housemaid, after she has washed up the breakfast-things, to turn out and clean one of the sitting-rooms, and for this purpose she must proceed in much the same way as directed for the bedrooms. The first things to be done are to open the windows, take away the table-cover, take all small rugs, cushions, and footstools outside and beat them, and remove small pieces of furniture, such as chairs and occasional tables, to a convenient place to be thoroughly dusted, setting the chairs in couples, seat to seat. If, however, for lack of space or other reasons, it is inconvenient to remove anything from the room, the small movable furniture should be packed in the centre of the floor, the bric-à-brac being set on a table, and the whole covered with a large dust-sheet. About once a month the china should be washed as well as dusted. Steps should be used when dusting the tops of sideboards and book-cases, and pictures that are hung high. Skirtings and wainscots should be washed as already directed, window valances, cornices, and tall furniture swept with a turk's-head broom, ceiling, wall, and carpet swept, and all the daily work of cleaning repeated.

French-polished and Mahogany Furniture.—In dusting French-polished and mahogany furniture, the brush must penetrate into all the twisted portions and crevices, which are very often neglected. The dusting-brush should be applied every day, and polish once a week. French-polished furniture should be occasionally washed with lukewarm water and mild soap, dried, and then rubbed with any piece of old soft silk to take away smears. Cold-drawn linseed-oil is also an excellent preservative.

Other furniture that is not French-polished should be cleaned with bees'-wax and turpentine, or equal parts of linseed-oil, turpentine, vinegar, and spirits of wine, applied with a linen rag, and followed by a brisk rub with a clean duster or a piece of silk. Vigorous rubbing has really more to do with imparting brilliancy to wood than the actual polish. It is especially necessary when the bees'-wax-and-turpentine preparation has been used, in order to remove all stickiness.

Stained Boards.—Stained boards should be washed as seldom as possible, as water makes the surface dull. When dusty, they should be rubbed with a little linseed-oil, occasionally polished with a mixture of bees'-wax and turpentine, and briskly rubbed with a duster.

Leather-covered Chairs.—Chairs that are leather-covered should, to retain their freshness, be thoroughly dusted every day. If any preparation is applied, it should be rubbed into the leather until it has become quite absorbed, a silk rag or a chamois skin being used to impart the final brilliancy.

Answering the Bell.—When the sitting-room and its furniture have been cleaned, everything must be returned to its proper position. It is probable that the housemaid will be interrupted in her task by luncheon, before which meal she must change her dress. After having served and cleared away the family lunch she must return to the sitting-room to complete any unfinished work, and then clean and recharge any lamps that are in use (see "Lighting", Vol. II.), and hold herself in readiness to attend to visitors.

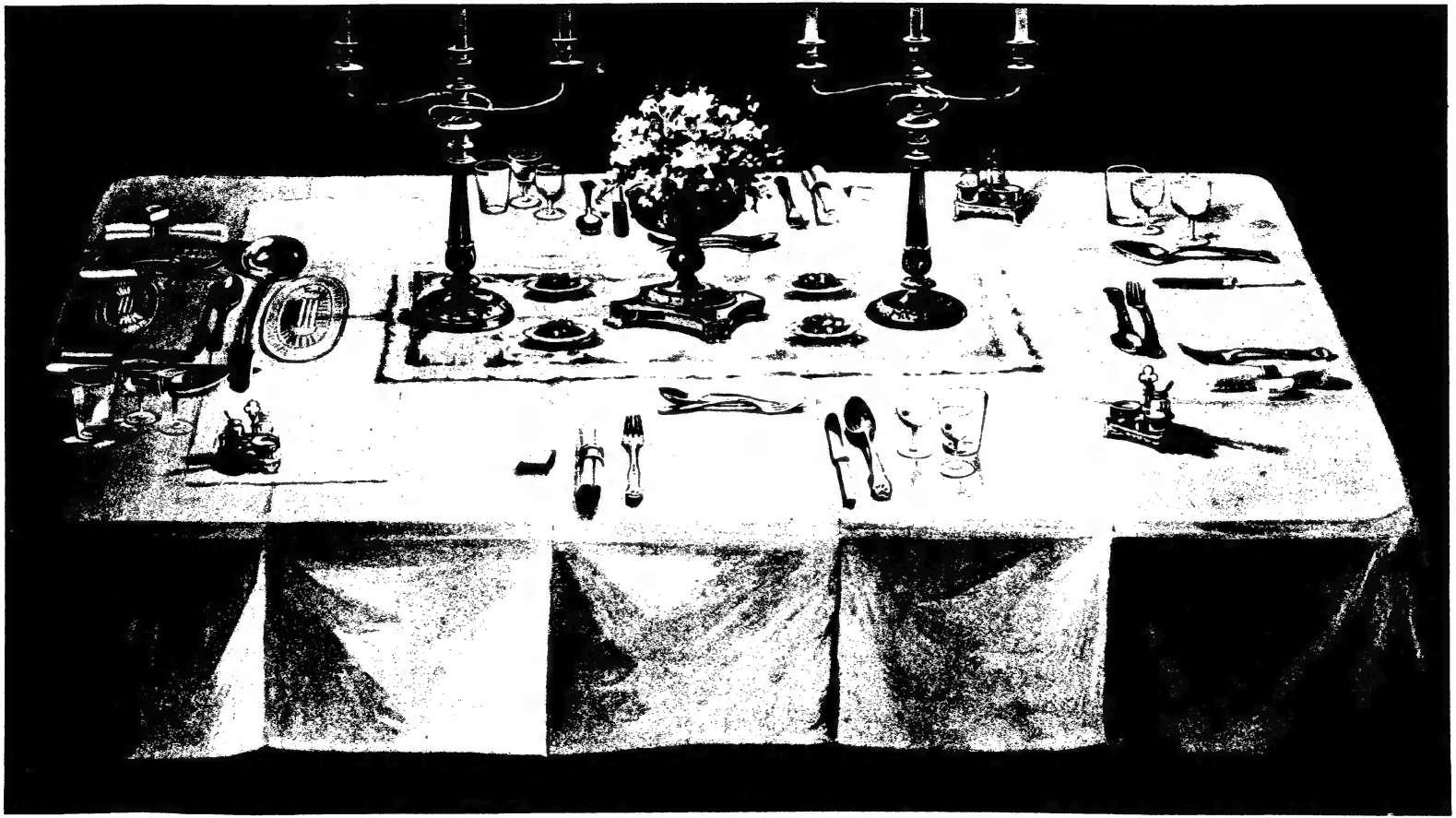
Immediate attention to the bell is important. The housemaid should not require to be summoned twice. When called to the hall door she should open it wide to visitors. A half-closed door suggests inhospitality and fear of trespassers. If her mistress is at home she should precede the visitor to the drawing-room, ask her name, enter the room herself and hold the door open for the visitor, meanwhile announcing her. Should her mistress be in another part of the house, the servant, after showing the visitor into the drawing-room and closing the door, should not lose a moment in going in search of her.

When the lady of the house is out, the housemaid must remember any message that is delivered to her by a visitor (writing it down if uncertain of her own memory), request a stranger's name or card, and receive the latter on a waiter, which should be kept in the hall for this purpose. She must use her own discretion as regards admitting strangers. On no consideration should a visitor be left in the hall or on the door-step while the housemaid inquires if her mistress is at home or delivers a message. On wet days she should at once relieve visitors of umbrella, waterproof, or cloak, and put them before the kitchen fire to dry, and on their departure she should be in the hall to open the door for visitors and assist them in any way they may require. She must take care not to close the door until the guests, whether walking or driving, have departed from the house.

The Tea-tray.—It is customary in most households, whether visitors call or not, for "afternoon tea" to be served about four or five o'clock. This may be either handed round on a tray, or set on an occasional table spread with a fancy tea-cloth. Care must be taken that the tray, when handed round, is held sufficiently low for each person to reach the cups easily.

The Dinner-table.—In winter, lights are an important part of the arrangement. These must receive the housemaid's attention at the right time. Windows must be closed opportunely, and fires kept up. Half an hour before dinner she should take to each bedroom a can of hot water, standing the can in the basin and covering the top with a folded towel to retain the heat. It will then be time to lay the dinner-table.

A small slip of damask should be laid on the cloth at the top or bottom of the table (or both), and mats for the dishes should be placed on this. Forks, knives, spoons, and glasses must be brought from the pantry on a tray, which the housemaid should deposit on the sideboard while she arranges the table, having previously ascertained the menu from the cook, and laying the table accordingly.



DINNER-TABLE.

wants of each person, handing the water-carafes, wine, and vegetables, and removing each plate at the appropriate moment.

When waiting at table she should stand at the left of her master, and after removing the plate of soup or meat should serve it at the left hand of the person for whom it is intended. Vegetables, entrées, cheese, and dishes which are handed round should also be offered at the left hand. This is a rule to be borne in mind: Plates are served and removed at the left hand; dishes are offered at the left hand; wine is poured out at the right, ale on the left, the diner placing his glass on a small salver held ready for him by the waitress. All the ladies present should be supplied before the gentlemen, the most important or eldest lady guest receiving first attention, the others following in order of station or age, and the house-mistress being served before her unmarried daughters. The same rule is followed with regard to gentlemen.

Dinner plates should be cleared from the table before the joint. A golden rule to be observed is—Never begin to set a second course on the table until everything connected with the first has been removed.

With regard to entrées and entremêts, these are either served by the master or handed round. For dessert a fresh plate, fruit knife and fork, doyley, and finger-bowl are provided for each person. If the sideboard is sufficiently large, all these things might be set upon it previously. Fresh wine-glasses should be served for dessert, those that have been used being removed on a waiter. (See also "Entertaining", Vol. V.)

When the dining-room is vacated, the housemaid should clear away the dessert. The rest of her evening work consists in washing up the plate and glass used at dinner (the cook undertaking the plates and knives), pulling down blinds, closing shutters, drawing curtains, turning down beds, laying night-clothes in order, and generally attending to the needs of the bedrooms.

Fig. 198.—Patent Decanter Cleaner.

To Wash Glass.—Glass-ware should always be washed in a wooden bowl. It may be dipped into warm, but should never be put into hot, water, and when the glass is dirty a little soap or liquid ammonia may be added, the glasses being afterwards rinsed in fresh water. Two cloths should be used, one for wiping off the moisture and the other for polishing. In drying wine-glasses the stem should be held rather loosely in the left hand, so that the glass has free play while it is gently wiped.

When washing decanters crusted inside with wine stains, a handful of salt should be thrown into the water and a decanter-brush (fig. 198) used. If this be not successful, some soda should be melted in warm water and the solution poured into the

decanter with the addition of pellets of brown paper, or shot, if the glass is strong enough; the decanter should then be gently shaken until the stains are removed, rinsed in clean cold water, and turned upside down in the rack or over a jug to drain. When dry, the outside must be polished with a soft cloth or leather. Decanters should never be put away with the dregs in them.

Cruet bottles are washed in the same way as decanters. Cut-glass needs a soft brush dipped in a lather of soap in order that the crevices may be thoroughly cleaned.

Plate Cleaning.—Half the trouble of keeping plate clean and brilliant will be saved if, after daily use, it be plunged into a lather of hot water and soft soap to remove all greasiness, wiped dry with a tea-cloth, and rubbed with a plate-leather. In addition to this, plate should be brushed and polished once a week, a good plate powder being used—whiting or rouge, or a mixture of both, put on with a plate-brush and rubbed off with a leather. Two or three plate-brushes should be in use, soft ones for smooth portions of silver, and others of harder quality for ornamental, chased parts and for crevices.

Whiting can be rubbed on dry with a leather or applied wet with a brush. If it is wetted with gin instead of water, and applied thus to tarnished plate, it has an excellent effect. It should be taken off with a plate-brush or leather.

In treating forks care should be taken to clean thoroughly between the prongs.

Sorting Linen.—On Monday mornings it is the housemaid's task to collect, sort, and prepare the soiled linen—household and personal—for the wash. It should then be taken to the bath-room and arranged in bundles, those pieces that require mending being set aside to be rough-dried. Everything should be counted, carefully entered in the washing-book, and wrapped up in a large sheet, which should be put at once into the laundry-basket.

On Saturdays the clean linen, as it arrives home, must be checked and aired, and as soon as possible distributed. (See "Laundry Work", Vol. III.)

Brooms and Brushes.—About once a month the housemaid should wash her brooms and brushes in a lather of warm water and soap-powder, afterwards hanging them up with the bristles downwards. The handles should be wiped with a damp flannel every day.

In conclusion, it may be as well to mention that as the housemaid's duties cover some of the same ground as spring-cleaning, which is treated in this volume, a certain amount of repetition is unavoidable. For further information on the subject the reader is referred to that article.

MALE SERVANTS.

Page Boys.—The page boy, or buttons, is less frequently seen now than he was twenty years ago, but a decent youth, well-managed and with all his time filled up, is an invaluable servant in the thrifty household whose heads do not wish to "keep more cats than kill mice". Usually the son of a servant, such as a coachman or butler in a good family, is best suited for the post. Such boys are accustomed to see occasionally how their father behaves to his master or mistress, and are likely to be far better mannered than the sons of artisans and labourers. In fact, the most satisfactory servants of all kinds are those belonging to families that appreciate the comfortable bed and board of domestic service in preference to less humdrum and less regular employments. The usual wages are about 4s. a week, with board, lodging, and clothing.

Fig. 199.—Page Boy.

Page's Outfit.—The page does not necessarily wear livery, but it does not involve any additional expense, and gives him a distinct position. The regular suit consists of a pair of trousers and a close jacket buttoned up to the chin, in dark-blue, claret, or green cloth (fig. 199). Black is seldom worn unless the family is in mourning, because it so soon looks rusty. No waistcoat is required or provided, and one suit a year, with sometimes an additional pair of trousers, is the usual arrangement. The page and all indoor men-servants should have a couple of neat print jackets. The ordinary tailor always keeps, or will get, patterns of narrow-striped material, red and white or lilac and white being the most usual. Buff or yellow and black are sometimes seen, but have a distinctly "horsey" look. The best material is the old "jean" or "nankeen", which wears almost like leather, but the print is cheaper, and a boy grows out of things. The jackets are cut straight like an Eton jacket, but longer, and are always lined throughout, and pretty substantial. A clean one is allowed every week.

At least one green baize apron, with a bib to it, is needed, and also a couple of good crash aprons made in the same way, and completely covering the front of the clothes, the skirt of the apron being so ample as nearly or quite to meet behind, so that the hips of the trousers are protected.

House shoes or slippers are always necessary; either two pairs in a year are allowed, or the plan is sometimes adopted of giving them when they

are wanted, thus ensuring that the boy is always decent in appearance. He provides his own boots, and keeps them in a convenient place so that he can readily put them on and off when he is going out or coming in.

All the other articles of clothing belong to the employer, and if the page is dismissed, he leaves them behind him, unless he has had a suit or a pair of trousers more than a year, and is thus entitled to it.

Page's Duties.—A moderate-sized house can be very comfortably managed with a cook-general and a page boy, and a larger one with a cook, housemaid, and page. This, of course, is exclusive of the nursery.

Although every mistress must make special arrangements to suit her own circumstances, the page's daily duties are generally much as follows. He rises early and puts on his print jacket and crash apron, cleans knives and boots, and fills the sitting-room coal-scuttles. The coal and wood for the kitchen he will have got in the night before, so that the cook has them ready to hand as soon as she is down. Where there is a stone hall, he sweeps it, turns out the mats and shakes them, and sweeps down the steps, and the pavement in front if the house is in a street. Where a hall is carpeted, few mistresses would trust a boy to use a broom upon it, as he would probably by his vigorous handling of it wear off as much wool as he would remove dust. Sometimes a window may be cleaned before breakfast, the boy doing the outside and a maid the inside, but that does not occur every morning. If there are any young men in the family, he should take up their hot water, draw up their blinds, and see if they have any clothes to be brushed.

A page, where no housemaid is kept, should always lay the breakfast-table, carry in the dishes when the cook has prepared them, ring the bell or sound the gong, and be in the hall with his apron off, ready to receive orders from his master or mistress when they come down.

He will come into the breakfast-room whenever the bell is rung, and clear the table when the meal is over. A neat-handed boy can be taught to wash up glass and silver, especially if there is a little pantry where he can do it. When not away on an errand, he will answer the front-door bell, and may do so in his print jacket up to twelve o'clock. He will wear his baize apron while cleaning windows in or outside the house, and also when cleaning plate and washing up, as it prevents scratching and breakages. The crash aprons are only for dirty work.

By luncheon-time the boy will have washed his hands and face, made himself generally tidy, and put on his "buttons" or cloth jacket, and now can lay the cloth and do what little waiting is needed at table, and afterwards clear away; if capable of doing so, he can help in the washing up. He can bring in afternoon tea, and wait at dinner or supper as at previous meals.

In winter it is as well that he should go round the house and "stoke" the fires; he thus sees where coal is wanted and can carry out and replenish the scuttles. In summer his spare time can often be employed in the garden, in weeding if he has learned to distinguish weeds from garden

plants, helping with the mowing-machine, and fetching and carrying for anyone who is at work there.

A word on the cleaning of windows will be useful. The boy should be provided with a sponge, a clean linen duster, and a chamois leather, and taught to wash each pane with the sponge, dry it with the duster, and polish it with the soft leather, which must always be kept dry. Some persons economize both dusters and chamois leathers by keeping old newspapers, rubbed soft, for drying and polishing windows. There is said to be something in the printing ink which helps to give a high polish.

In winter perhaps the convenience of keeping a page is more felt than in summer. Paper, straw, dead leaves, and all sorts of rubbish are often blown up against the front of the house, and inside the small garden if there is one, and though many mistresses hesitate to tell a maid to sweep them away, it is suitable work for a boy. After a fall of snow it is his place to clear the steps and make a path to the gate. If the stones are slippery, he will shake a little silver sand or saw-dust over them in a minute, where a girl would want (and very properly) to put on a hat and shawl before setting about it.

The Handy Man.—A handy man should have a smattering of a good many trades and be of industrious habits. No clothes are provided for him, but he usually expects to find aprons ready for his use: his wages vary from 12*s.* to 15*s.* a week without board and lodging. He comes at 6 a.m. and leaves at 6 p.m., unless his employer prefers his beginning at 7 a.m., or special arrangements are made to suit special circumstances. He gets in coal and wood morning and evening, and the first thing before breakfast, if needed, sifts cinders, cleans boots and knives, and does any sweeping up required outside the house, back or front. He also cleans the windows, and is called in to bring steps or ladder, to carry luggage up and down stairs, and to do any rough job beyond the strength or compass of the maids. If he can do a little plain painting and whitewashing, so much the better; there is frequently something of the kind required in or outside a house or its outbuildings. If fowls and pigs are kept, the feeding and attending to them is his work, while in many places there are catch-pits to empty, spouting and guttering to keep clear of dead leaves and birds'-nests, and perhaps a small lawn to cut and garden to keep tidy where there is no gardener. If, in addition, he can put a hinge on a gate or a bolt on a door, and nail up a stray creeper, he is a very valuable person.

The Coachman-Gardener.—An indispensable man-servant in many professional and other houses is the coachman-gardener, who attends to one or perhaps two horses, has a carriage to clean, and fills up his time in the garden. He seldom has livery; if he is sometimes required to drive, a coachman's coat and tall hat are provided for his use, but belong to his employer. Stable jackets should also be supplied to him. He will attend to pigs and poultry, and even to a cow, and with the assistance of a boy he can manage all these things and a large garden, with a fair

amount of glass, such as greenhouse, conservatory, and pits. His wages will be from 25*s.* to 30*s.* a week, or less if he can have a cottage or rooms. Good stabling generally has rooms over it that can be utilized for this purpose, or there is often a cottage in the grounds or close by. If no accommodation is provided, considerably more wages must be paid.

Whether the man is single-handed or assisted by a boy, he usually has to take coal and wood into the house night and morning, and to clean the boots. The horses, however, are his first care, for their health and well-being depend on regular food and attendance. When he has given them their morning corn and allowance of cut-chaff (hay and straw), he removes the night litter and tidies the stable, and then waters them and proceeds to curry-comb, brush and rub them down, black their shoes, &c. Before going to his own breakfast he feeds any other animals that may be kept, and as soon as he returns goes to the house to take his orders for the day.

He must examine the harness every day if it is to be kept supple and in good order, and when the horse and carriage are used should send them out spick-and-span. He should be ready to receive the carriage the moment it comes in, unless he has been out with it, and directly the horse is unharnessed should stable and groom and, if meal-time has arrived, feed it. A carriage should always be cleaned as soon as it comes in, as the dirt is then much more easily removed, and the length of time the wheels remain in good working order depends very much on the quantity of water dashed over them. They should also be oiled once a week.

If there is a conservatory for plants in blossom, it must be kept stocked from the greenhouse, and the pots changed and removed from time to time so as to maintain a succession of bloom. Both greenhouse and conservatory floors should be scrubbed once a week, and every shelf and the outside of every pot cleaned if possible. This keeps down aphides and red spider.

Gravel and grass paths must be kept rolled and weeded, and lawns regularly mown once if not twice a week from April to the end of October, unless the weather is very dry and hot, when the grass does not grow fast. Where the coachman is also gardener he has every inducement to attend to the manure-pit and use the contents up by degrees as the garden needs it. His duties include the care of all hay, straw, corn, fuel, seeds, tools, and implements, and the shoeing of the horse when necessary; and he should keep account of them regularly in a book, which most employers go through once a month.

Wet or severe weather, when little outdoor work can be done, is sadly demoralizing for men-servants, unless they can find some occupation under cover. Dog-kennels, ladders, and steps should be painted every winter, as the paint preserves the wood. Tallies can also be prepared for marking seed-plots, and sticks for supporting plants. The outside of a greenhouse and frames should be puttied, glazed, and painted every summer, the best time being in the stretch of fine weather that may generally be expected after the bedding plants are put out, and the garden is in thorough order.

This is always done by the gardener in the intervals of other necessary work, and though perhaps two coats of paint may be wanted only once in three years, an annual coat makes all safe and smart.

THE GENERAL SERVANT.

In many households the domestic duties are performed by a single servant. The routine differs slightly in this case from that followed where there are housemaid and cook. More work necessarily falls to the mistress; and she had better settle clearly in her mind what she prefers to do. Such cooking as the making of pastry and cakes, sweets and soups, will be more economically and better done by her; dusting and the arrangement of rooms is not too heavy work for a lady; and where there are children, the mother will usually attend to them herself, though she may allow the servant occasionally to take them out for a walk or to amuse them.

Engagement of a General Servant.—In engaging a general servant the leave of absence to be given should be exactly defined. Part of the Sunday will, of course, be allowed; but the weekly evening out, claimed by most servants, should not be fixed too definitely. The servant may prefer a certain evening, but she should from the first be given to understand that if household circumstances happen to make that day in any week inconvenient, another evening will be substituted. If this is not mentioned beforehand, she may make a real grievance of not having her Friday or her Tuesday, as the case may be, and where only one servant is kept, her absence may be most inconvenient.

Duties.—The general servant must be an early riser. Six in summer and a little later in winter is a good time for her to begin her work. On coming down she should first unbolt the doors and raise blinds and windows, to let air and light into the house. To clean the stove and light the kitchen fire is her next task, after which she fills the kettle, and proceeds to put the kitchen in order. Special attention must be paid to neatness. When doing dirty work, such as cleaning stoves and sweeping, she should wear over her white apron an extra-large coarse kitchen apron, covering her dress and tied or buttoned behind. It can be removed in a minute; and if in addition she wears wash-leather gloves for her black work, she need never be untidy when answering the door-bell. A good supply of kitchen towels and soap, and even a small looking-glass in the kitchen, will help a girl to keep herself neat.

After cleaning the kitchen she must attend to the dining-room. In winter the stove must be blacked and the fire lighted; in all seasons the room must be swept and put in order. Then the halls and stairs should be swept. In the hour and half before an eight-o'clock breakfast she will not be able to do much more, especially if she be interrupted by the postman, milkman, and newspaper-boy. She will have no time for elaborate break-

fast cookery; boiled or fried eggs, toasted bacon, or something equally simple, will be all she can manage; if more is needed the mistress should do it herself. But morning cooking, especially in summer, may often be avoided; cold boiled bacon, ham, tongue, sausage-rolls, and meat-pie, with potted meats and marmalade, will furnish ample variety for most days.

It saves time if the servant has her breakfast in the kitchen while the family have theirs. The old-fashioned plan of making her, for economy's sake, take her meals later has almost died out, except in the case of dinner. The cost of an extra pot of tea, or of a small extra dish, is trifling, and most servants much appreciate the comfort of these arrangements. After the meal, she is at once ready to clear the dining-room table and wash up the tea-things, for which she should have a kettle of boiling water ready. This work is best performed directly. The kitchen is then clear for the mistress to begin her cooking. Filling the coal-scuttles for the day, cleaning the knives (if not done before), and getting the vegetables ready both for lunch and for the late dinner, may follow. These things keep the servant down-stairs ready to answer the door-bell.

Meanwhile the bedrooms have been airing. Children should be early taught to open their windows and strip their beds before leaving their rooms. If the mistress has made her own and the children's beds—not a difficult task with the modern spring-mattresses—and dusted round, the servant will have only to empty the slops and put her own room in order. On most days in the week there will be a room to clean thoroughly. It should be arranged which rooms are to be done, and a written card containing the week's work, hung up in the kitchen, greatly helps the memory. Drawing-rooms, bedrooms, pantry, and larder will only want a weekly sweeping; and perhaps one day in the week will remain free for such work as rubbing door-handles, scouring kitchen utensils, and polishing furniture. In the cleaning of the bedrooms or other rooms a lady may save her helper much time if she removes the dressing-table and mantelpiece ornaments, and lays them on the bed or sofa, together with all cushions, antimacassars, and table-cloths, and after the sweeping puts them back again. Moving and replacing these ornaments consumes much of a servant's time, and they are much safer in a lady's careful hands.

As the master of the house is frequently away at business all day, late dinner, even in very modest households, has now become the rule. But at mid-day some meal must be served: lunch for the mistress, and early dinner for the kitchen and nursery. While busy upstairs the servant must not forget the kitchen fire. The cooking of meat and vegetables is generally left to her care; she must, therefore, leave her bedroom work in time to set the lunch-table and attend to any hot dishes required. If the mistress alone is in for lunch, a neatly-set tray carried into the dining-room will perhaps be sufficient, as many ladies are content with cold meat, bread-and-butter, and a cup of cocoa or coffee. It is, however, easy to arrange on most days some small warm dish for the servant—a savoury stew, a chop or steak cut from the end of the joint reserved for the family dinner,

and a small pudding or tart. Of course, where there is a nursery dinner she can share it.

When the kitchen has been tidied after lunch, the servant should, as soon as possible, change her dress. Many mistresses lay great stress on this being done by a certain hour, 3 or 4 p.m., yet find it hard to get their wish fulfilled. Sometimes a girl's own self-respect will help to the desired result. To be neat in the afternoon should be a source of pride to her, and to make her toilet is a real refreshment after the morning's labours. She can now attend to light duties, such as cleaning windows, rubbing glass and silver, ironing or airing linen. Of course much washing should not be attempted. But the washing-bill—often a heavy item—can be reduced by keeping at home kitchen towels, cloths, and dusters, and such small things as pocket-handkerchiefs, collars, and cuffs, which cost little trouble to wash and iron. Sometimes a servant is expected to wash her own personal linen. Where there are young children, some washing is unavoidable. But all such work should be done early in the day.

While busy with these light duties, the servant will find it easy to put in at the proper times the dishes to cook for the late dinner. This is not dirty work, and a coarse apron over her white one will sufficiently protect her dress. She should be enabled to find time for tea during the afternoon. In setting the dinner all dishes should be placed on the dining-table, so that the family can help themselves without rising. There is then no need for her to stay in the room, but after bringing in each course she should wait and hand round the plates. She should then hasten out, and with hot water and tubs ready beforehand, a brisk maid will be able to wash up plates, knives, and glasses while the dinner is still going on. As soon as dinner is cleared, she will have an hour or so of quiet and rest. She needs this, for she can neither keep neat without some leisure for sewing, nor be happy without a little reading; being without a companion she does not get the change of thought given by chats with a fellow-servant.

During the evening, or in winter in the afternoon, she should go the round of the upstair rooms, shutting windows and drawing down blinds. She should also turn down the beds, refill water-jugs, and empty slops. The kitchen fire is usually wanted till the last, and the stove remains too warm to be cleaned, otherwise it is a great help to the morning's work if this can be done overnight. But in any case she can collect kindlings, coal, and matches for the next day's lighting, as this saves some minutes of the valuable morning time. A considerate mistress will see that her servant is able to go up to bed about 10 p.m., for proper rest at night is essential.

A general servant must, of course, have a knowledge of all kinds of work. To her fall the duties which, in a large establishment, would be performed by the page boy, such as the cleaning of boots, knives, and windows.

All the old gloves of the master of the household should be given to the servants for use when polishing stoves, the kitchen range, cleaning out the flues, or doing any other dirty work which is trying to the hands. The

mistress should supply a little glycerine now and then when their hands become "chapped", a very painful consequence of rough work.

Boot Cleaning.—Boots should never be cleaned when damp. After a walk in mud or snow they should be put to dry, soles upward, but not close to the fire. In snowy weather they may be rubbed before a walk with mutton fat, which renders them in a measure waterproof. If, however, they should become wet and the leather turn hard and stiff, kerosene rubbed in is said to make them soft and pliable again.

A servant should keep her hands as clean as possible when polishing boots. A dirty hand thrust into dainty foot-gear leaves soils that come off on the wearer's stockings. The hand that holds the boot can be covered with a duster.

The old-fashioned blacking is now but seldom seen, for the reason that boots, save for the use of the artisan or working man, are now made of fine leather or kid instead of the strong leather once in favour. Many varieties of creams and polishes are to be had for boot cleaning, and some of these are sold in boxes with the necessary accompaniments, viz. a brush for removing the mud, and a cloth (usually selvyt) for polishing. These render the task of boot or shoe cleaning so much lighter that it is not at all unusual for the ladies of a family to clean their own shoes, rather than send them downstairs to be possibly neglected or forgotten, and sent up with a cockroach inside them. Servants, too, are rather apt to smudge the lining of the shoes, and this vexes the dainty instincts of a gentlewoman. It is now always the lady's maid's duty to clean her mistress's boots and shoes. Should there be no lady's maid, the housemaid cleans the ladies' shoes, the cook undertaking those of the gentlemen of the family, whether blacking or varnish be the stuff to be applied. Men who are very particular about their patent-leather boots and evening shoes sometimes prefer to apply the polish to their own, unless they happen to command the services of a valet.

When travelling, and especially when staying at country houses and hotels, much friction is averted by doing one's own boot cleaning in this easy way. A small box of Ronuk, for instance, takes up little space in the packing, and prevents the worry too often consequent upon leaving one's boots outside the bedroom door, and receiving someone else's in the morning. A small bottle of polishing cream with a glove, half leather, half cloth, is a useful apparatus for this purpose.

Boot cleaning is one of the numerous things in which modern ingenuity has come to the rescue, to the great saving of time, trouble, and temper—the three T's, as someone has called them, in a kind of plagiarism of the three R's—and anyone who economizes them is worthy of our gratitude.

A servants' boot-cleaning cupboard should contain brown as well as black polish, since so many people now wear brown leather boots. The brown cream is put on with a sponge, and polished with a light brush; not the same, of course, as is used for the black boots. Brown boots do not require frequent cleaning, and an excellent and simple way of polishing

them is to rub them with the inside of the skin of a fresh banana. White cream may be obtained for the white boots now so fashionable. If a cupboard cannot be spared for these requisites, a wooden box should be provided; brushes and bottles of polish should never be allowed to lie among other articles.

Knife Cleaning.—Knife-machines (fig. 200) are often found in large households, but for the ordinary family home the well-known knife-board proves sufficient. The knives should be wiped clean after every meal with a dish-cloth newly wrung out of hot water. They will only require washing

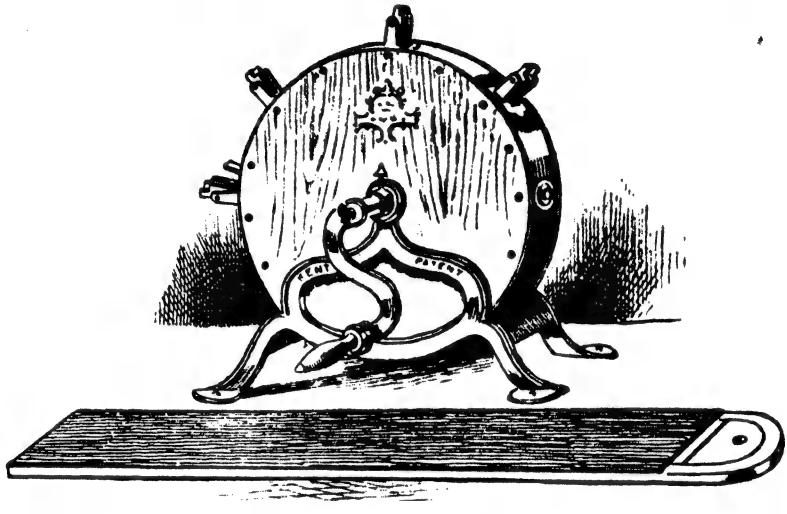


Fig. 200.—Knife-cleaning Machine (for three knives and carver) and Knife-board.

once a day. They should then be plunged into a jug of warm (not hot) water and soda, and moved briskly about. Great care must be used not to let the handles touch the water, for this loosens the blade. After being wiped and dried, they are rubbed sideways backwards and forwards on the knife-board, sprinkled with bath-brick powder. This should be done with great evenness, otherwise the edge of the blade may be cut or jagged. Another plan is to rub the blades with a well-soaped flannel, on which some powdered bath-brick has been sprinkled.

When knife-blades become stained by fruit they should be rubbed with sliced raw potatoes. The white ivory handles, even if carefully used, often become yellow. When this is the case, cover them with a thick lather of soap and lay them in a sunny place. Another method is to mix powdered pumice-stone with a little soap. Or the handles may be cleaned with powdered pumice-stone with a little soap, and then rubbed with a little dry whitening. The blades of knives not in daily use may be well coated with mutton fat, and laid away in brown paper, so arranged that they do not touch one another. This prevents rust. As good steel knives are expensive articles, the servant should be taught to take care of them, and count them as regularly as silver spoons. For common kitchen

purposes, such as peeling potatoes and cutting meat for cooking, inferior knives should be kept.

Window Cleaning.—Bright, shining windows improve greatly the appearance of a house. In some households a periodical window cleaning, once a month, or even once in three months, is thought sufficient; but to keep the glass really nice, it should be cleaned every week. *In the case of* windows which cannot be reached by means of steps, the servant *should sit* on the ledge, and draw the upper sash down upon *her. In the country a* garden hose is often employed. It is illegal to allow a servant to stand outside.

For window cleaning there are required a wash-leather, a silk or linen cloth, and some cold water. A little blue, such as is used for starching, or some washing-soda, may with advantage be added to the water. The wash-leather should be dipped in the water and rubbed well over one pane. Before wetting another pane, take the cloth and polish well, giving special attention to the corners, where dust is apt to gather. It is best to use linen or silk, because a cotton cloth leaves smears behind. A newspaper, doubled once or twice, will serve the same purpose excellently. The paper leaves the glass very smooth and clear, but, as it tears and gets pulpy in the process, it should only be used as a temporary substitute.

HOUSEKEEPING IN A FLAT WITHOUT A SERVANT.

Housekeeping in a flat without a servant has become of late a fairly common condition of things, but chiefly among two classes. The first class is made up of those who can afford to pay an exorbitant rent for a suite in a block where service is supplied and meals can be had at a smart and expensive restaurant attached; the other consists of the ever-increasing number of working gentlewomen who live either alone or with a friend in tiny flats of a couple of cupboard-like rooms, depending partly on the aerated-bread shops, partly on spirit-lamp cookery, for their food. At present both these kinds of flats are almost exclusively confined to cities.

The particular type of flat to which these suggestions more especially refer comes midway between the two, contains from four to six rooms, and is neither fashionably situated nor highly rented. It has not inclusive service, hot water laid on, nor a restaurant. Yet it is quite possible for a lady to undertake the whole of the actual housework of such a flat, occupied by herself and her husband, with little if any outside help; and if mother and daughter or two sisters live together and share the labour, matters are further simplified.

The possession of fairly good health is, of course, essential, yet no extraordinary amount of physical strength is called for. A woman between thirty and forty years of age, able to take the amount of exercise habitual to her age and class, is perfectly capable of doing any of the work performed by a young general servant, although as a matter of fact it may not be necessary,

or even desirable, that she should do so. It is, however, essential that she should have a nice sense of order and a methodical mind, for the success of servantless housekeeping depends almost entirely on the housewife's capacity for planning to the best advantage every minute of her time.

Speaking generally, one lady may venture without hesitation to undertake the work of a flat containing a good-sized sitting-room, a smaller room used only for meals, a couple of bedrooms (only one probably in regular use), bath-room, and kitchen, provided that the rooms are not very elaborately furnished, and that there is a gas-fire in the dining-parlour.

If a porter be attached to the block, as is often the case in London, he will generally be found willing to clean boots and shake the door-mats for a small annual payment, and also to manage the periodical window-cleaning, the removal of dust, and the bringing up of coals, the arrangement for the two last varying in different flats. It will be necessary to engage a strong, respectable woman for one whole day a week to "turn out" the rooms thoroughly, but no further assistance should be required.

Routine in a Flat without Servants.—Modified, of course, to suit special circumstances, the routine of the daily work should be planned something after this fashion. Very early rising, if not rendered necessary by other reasons, is to be deprecated, at any rate in the winter, for getting up before daylight means the burning of much gas or oil, while it fatigues for the rest of the day those who are not very robust. About 7.30 the housewife should rise and put on a dressing-gown, not a smart befrilled gown with a sweeping train, but one which is sensibly thick and warm. Then she should light the gas-fire in the little dining-room and the gas or oil cooking-stove in the kitchen—something of this sort is indispensable in a servantless *ménage*—open windows, and put the kettle on before she returns to finish her toilet. By the time this is accomplished, the flat will be aired, the dining-parlour warmed, and the kettle boiling ready for the coffee, which, when made, can be set on the corner of the stove to clear, while the dining-parlour is dusted, the table laid, and the hot breakfast dish cooked. All this can be done in half an hour, if nothing more elaborate than bacon, or something equally easily and quickly cooked, is considered sufficient.

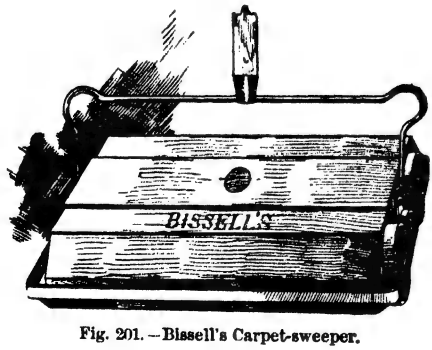


Fig. 201.—Bissell's Carpet-sweeper.

After breakfast is cleared away, the plates and dishes should be sorted and stacked in a neat pile, the spoons or forks being laid in hot water or soda, and a large kettle put on the stove to boil, ready for washing up, which is to be done after the bed-making, dusting, and sweeping have been performed. All this must be done in orderly fashion, the carpets being swept with a patent sweeper (fig. 201), and the floor margins wiped with a damp cloth so as to obviate the unpica-

santness of clouds of dust. If gas-fires are used throughout the flat the question of grate-cleaning need scarcely be considered; but a coal-fire is certainly much pleasanter in the sitting-room, while the advantage of having a kitchen fire to burn rubbish and to ensure an ample supply of hot water can scarcely be exaggerated. The cleaning of the grates need not be a very serious matter after all. If they are thoroughly black-leaded and polished by the charwoman once a week, a damp duster for the tiles, a soft little brush for bars and sides, and a leather for the brass-work will, if used carefully, keep the sitting-room fireplace spick and span for the other six days, while the kitchen range need only be swept up and dusted daily, if care is taken to rub off at once any spot of water or anything else which may fall on the bright-work. A duster, a sheet of emery-paper, and an oiled rag should always be at hand for the purpose. As a matter of fact, however, a lady is naturally neater-handed than an ordinary servant, and is consequently far less apt to stain the range, fender, and hearth by upsetting things or allowing sauce-pans to boil over.

How to Save Time and Trouble.—Set down in cold black and white, housekeeping without a servant may, at the first glance, appear to be a formidable undertaking, but the reality is much less alarming. As most people lunch and dine out occasionally, this lightens the cookery part of the work. Furthermore, it is always possible to get daintily-cooked cold dishes sent in from the catering department of one or other of the big stores, but this extravagant way of managing things should be the exception rather than the rule. In summer, of course, not only is the trouble of grate-cleaning little or nothing, but also the rooms get much less dirty than in winter.

As a rule the whole of the actual housework should be finished by eleven o'clock, except on the days when silver or brass ornaments may have to be cleaned, but it is best to do as much of the cooking for the whole day as is possible before lunch. This need not entail dining entirely and invariably off what Tom Sawyer describes as "old cold cannibal", for soups, curries, stews, rissoles, and pastry can be either completely cooked so that they only require rewarming, or prepared for cooking, hours before they are to be eaten. Even if a hot pudding is wanted for dinner, all the dry ingredients can be weighed out and put together ready for "wetting up". Large joints should, if possible, be avoided; they are unpleasant to handle and uninteresting to cook.

Washing up dishes need not be a repulsive process, provided that there is an ample supply of really hot, not tepid, water, and that soda or ammonia is added in fairly liberal proportions. That greasy abomination, a dish-cloth, should never be used. A little mop is quite as effectual, and as its user need not put her hands in the water, the latter may be nearly boiling, so that the grease can be removed with the minimum amount of unpleasantness.

Water, with a little soda in it, should be boiled in metal sauce-pans after use; they can then be cleaned in a few moments with the aid of

a stiff brush, sand, and soap. French fireproof earthenware and porcelain utensils, however, are nicer than metal ones for a lady-cook's use, as they are lighter to handle and easier to clean. Enamelled iron has some advantage when new, but when the enamel becomes cracked it is difficult to keep in nice order. A couple of steamers will be found invaluable. Not only is it much better to steam a pudding with buttered paper over it than to wrestle with a greasy pudding-cloth, but all kinds of things, from porridge to curry, can be rewarmed in a steamer with the smallest possible trouble.

The actual amount of time that a lady doing her own house-work can spare for other occupations and recreations depends on many things, but if breakfast is not later than 9, and lunch is at 1 o'clock, she should have from 2.30 to dinner-time free from household cares. If everything has been got ready in the morning, the preparation of the evening meal should not take more than half an hour, and the washing-up and "tidying up" afterwards ought to be done in from half an hour to three-quarters. Indeed it is not absolutely necessary that all the dinner-things should be washed up if she objects to late work. It is not advisable that the silver should be allowed to remain dirty overnight, but the crockery may be placed in a pan of water, with a lump of soda dissolved in it, and left until the morning. The kitchen should always be cleared before bed-time.

Charwomen.—The selection of a charwoman is rather an important point. The familiar person in a rusty crape bonnet who departs with a big and bulging brown-paper parcel under her cape is not desirable, although it must not be forgotten that the usual faults of this type of person, her gossiping propensities, her greed, and her tendency to appropriate kitchen stuff in the way of dripping, bread, and cold meat, are much less dangerous when she works directly under the eye of her employer, and has not a dupe or accomplice in the shape of a foolish or wasteful maid. It is often possible to get a respectable young married woman, formerly in service, who is willing to come in for a day's work each week, or the local branch of the Charity Organization Society can sometimes supply the name of a decent woman, although she is more likely to be of the ordinary charwoman class.

No one should be engaged who cannot refer to a former employer or to someone in a responsible position. If there is a flat porter, his wife will sometimes "come in to oblige", but this is apt to be regarded by her as an act of grace—a favour to be vouchsafed only to the most open-handed of the tenants.

The charwoman's day's work must, of course, be carefully planned out for her. She should thoroughly clean the range and sweep the flues before breakfast, proceeding afterwards to turn out the living-rooms. This will occupy all the morning. The afternoon must be devoted to cleaning the bath-room and the kitchen, scrubbing the larder shelves, polishing tins, and similar work. The mistress should, if possible, assist in getting the

Some pains should be taken to avoid unnecessary disfigurement of the hands. They should be wetted as seldom as possible, but when washed after doing kitchen-work they should be thoroughly dried, and a few drops of glycerine and rose-water should be rubbed into the skin. A slice of lemon should always be kept ready for use after peeling apples or potatoes, for both stain the fingers badly, and at night a good toilet cream should be well rubbed over hands and wrists.

As to the working-costume, a serge skirt made short enough to clear the ground, a flannel or cotton blouse with sleeves that will roll up easily, and a large bib apron that completely covers the skirt, will be found best. To slip on over a smarter gown, a big studio pinafore is an admirable garment, and it may be accompanied by a pair of detachable sleeves.

There is one thing against which the young and inexperienced housewife should be warned, namely, the tendency, one very hard to resist sometimes, to lose hold of the little refinements of life. Careless and untidy table-laying, with a sparse allowance of silver and cutlery, the use of the kitchen crockery "because it is easier to get at", lunch off a cup of tea and a bun, meals in the kitchen when alone "to save trouble"—all these, and

many other small slovenlinesses, are in the nature of things very apt to creep into households lacking servants. And unless their insidious temptations are resisted, a very miserable and uncomfortable state of things will be the inevitable result.

On the other hand, a gentlewoman who can manage to do the work of a small, compact, well-planned flat, is agreeably relieved from the too close vicinity of a servant's bedroom, and from the presence of a member of a class whose ways differ essentially from her own. It is this immense difference that creates the undeniable antagonism existing (in most cases) between mistress and maid. The former's sense of nicety and refinement is offended a dozen times a day by the rough-and-ready methods of her handmaid; and the latter, in her turn, considers her mistress ridiculously fastidious. One of the pleasures of doing one's own housework is the knowledge that everything is scrupulously clean, that everything is in its place, that the cooking utensils will not soil the fingers when they are taken up, and that the food is not handled by fingers that may be far from clean.

SPRING CLEANING.

Just as spring cleaning is a very necessary evil in every household, so also is it undoubtedly a nuisance to those charged with the responsibility. The extent, however, to which it becomes a nuisance depends entirely on the manner in which the work is carried out. If a system is decided upon beforehand, and rigidly adhered to, everything should be comparatively plain-sailing. The importance of working on a fixed plan cannot be too strongly impressed on the young housewife, for it is upon her that the supervision of this part of the household management naturally devolves. A haphazard way of commencing in one room and then going on to another before the first is finished, must above all things be avoided; general discomfort is the only result, and spring cleaning becomes a "reign of terror".

Extra Help.—If only a modest establishment of one or two maids is maintained, extra help must be temporarily obtained. If a charwoman is to be employed, it is as well to determine beforehand what particular work she is to undertake, otherwise she will spend all her time over "odd jobs". This invariably means that several hours will be wasted, which will nevertheless have to be paid for.

Best Time.—The beginning of May is the best time to choose, as the weather is then more likely to remain fine—an important consideration, especially in regard to carpets, which require beating in the open air. If the children can be sent away at this time of the year, their absence during the house-cleaning will be found greatly to simplify matters.

Method.—Begin at the top of the house and work downwards. Take the opportunity that now occurs to destroy all unnecessary odds and ends that have accumulated during the past twelve months. Operations should therefore commence in the lumber-room. Empty all boxes, and having carefully sorted their contents, paint the insides of wooden trunks with turpentine. This will be found an effectual safeguard against moths. Brush and shake all extra bedding, clothes, and linen that may be stored here, and leave them to air in the sun as long as possible. Proceed in turn to the nursery, bedrooms, and bath-room. Afterwards take up the stair carpets. Next attend to drawing-room, dining-room, and library. Finish with the kitchen, scullery, and cellar. Leave the hall to the last.

As everything in daily use daily gathers dirt, thoroughness is essential; cleaning in haste always means repenting at leisure, *i.e.* for the ensuing twelve months. Do not attempt to attend to more than one room at a time. As each is reached in turn, empty it entirely of furniture, carpet,

and curtains. Collect all ornaments and knick-knacks on trays, and send them to be dusted and washed in another room. Take down pictures and brackets from the walls. Heavy pieces of furniture, such as pianos and sideboards, must sometimes be left in the room: when this is the case, cover them carefully with dust-sheets. The cleaning may then commence. The first thing to do is to shut the door and open the window—a rule sometimes reversed by inexperienced housewives. Next sweep the ceiling lightly with a clean soft broom. If whitewashing is necessary, it is best done now while the room is empty. Smoke marks are removed from the ceiling by washing with soda and water. When this has been done, go on to the walls.

SPECIAL ROOMS.

To facilitate easy reference, it is best to take the more important contents of the house in alphabetical order. But first there are a few rooms which need special reference.

Bedrooms.—Put mattresses and bedding out to air for as long as possible, having first thoroughly brushed and beaten them, so as to remove as much dust as possible. The contents of the wardrobes should also be brushed, shaken, and put out to air. See also "Bedsteads".

Bath-room.—If necessary, repaint the bath with bath enamel; be careful to see that it is perfectly dry before using again. Clean brass taps, and renovate woodwork in the manner afterwards described. If the taps or cistern require repairing, send for the plumber.

Kitchen.—Thoroughly scrub and scour all kitchen utensils, whether in use or not, and see that every drawer and cupboard is turned out and the contents sorted; servants are much given to storing up rubbish of every kind. Stains are removed from porcelain-lined sauce-pans by filling them with boiling water containing a table-spoonful of powdered borax. Take the opportunity of having the kitchen range overhauled and the sink examined. It is as well to have a man in to clean thoroughly the gas-stove, which in twelve months' use accumulates an astonishing amount of dirt, if not carefully attended to daily by the cook.

Cellars and Store-rooms.—Scrub all wood-work: also scrub the apple and vegetable bins, and leave them out in the sun to dry. Have the ceilings and walls lime-washed. When all is done, take an inventory of all linen, glass, china, and kitchen utensils. Compare with last year's inventory, and renew what is necessary.

THE CLEANING OF DIFFERENT ARTICLES.

Though the best methods of cleaning the various objects in a house are given in other sections, such as "Housemaid's Duties" and "Cook's Duties", several may with advantage be mentioned here. They are arranged in alphabetical order.

Alabaster Figures.—Dissolve 1 oz. of borax in a quart of boiling water, and when it is cool wash the figures carefully with it, and dry them with a silk handkerchief. If they are badly stained, use a paste of quicklime and water, and let it remain on for a day; then wash it off with soap and water.

Bedsteads.—Wooden bedsteads require sponging with a solution of hot alum and water: iron ones should be wiped all over with a cloth damped with paraffin. When the oil dries the smell will disappear. Cover the slats with fresh brown paper, in order to prevent their marking the mattress.

Benares and Moorish Trays.—Mix some whitening with water to the consistency of London milk, and scrub it well in with a moderately hard brush: then run it clean under a tap, and wipe with a perfectly clean cloth. Set it before the fire: when very dry, polish it with a clean chamois leather. This recipe is excellent.

Blinds.—To clean holland or linen blinds, lay them out flat on a table and rub all over with dry bran, the crumb of a stale loaf, or flour.

Boards, to Wash.—Boil together for three hours 1 lb. soft soap, 1 lb. common soda, 1 lb. fuller's-earth, 1 gallon of water. Add about half a pint or rather less to every bucket of water.

Brass Rods and Ornaments.—Brass rods need rubbing with powdered rotten-stone and oil—a cloth is best,—and afterwards polishing with a leather. If much tarnished they should be rubbed with flock, or cotton waste, dipped in a solution of oxalic acid. Wipe perfectly dry, and polish with powdered whiting and wash-leather. Brass handles and ornaments are cleaned in the same way. Remember that oxalic acid is poisonous. It is as well, therefore, to wear gloves when using it.

Brass-work.—Lacquered and unlacquered brass-work require entirely different treatment. As a rule such things as bedstead ornaments, door-fittings, and modern fenders and fire-irons are lacquered, and should be merely washed occasionally with lukewarm soap-suds and rubbed gently with a wash-leather. When they get shabby they must be relacquered in the following way:—Soak or boil (if practicable) the articles in a strong solution of two parts washing-soda and one freshly-slaked lime to remove all trace of old lacquer and greasy matter. Then rinse in water and scour with silver-sand or with a wire "scratch-brush", rinse again, and dry. Next dip for a moment in diluted aqua fortis (about two parts water to one of strong nitric acid), and wash again with several changes of clean water; if the colour looks patchy the dipping in aquafortis and washings must be repeated. Then dry the articles in warm saw-dust, rub with a clean, soft duster to remove any finger-marks, and put on a stove or hot-plate until they are so warm that they can only just be held comfortably. Then apply the lacquer quickly and evenly all over with a piece of soft sponge, and set the articles aside to dry in a place free from dust.

Recipe for lacquer:—Best pale shellac, 360 grains; dragon's-blood, 60 grains; methylated spirit, ½ pint. Dissolve without heating, give an

occasional shake. Allow it to stand until it settles; pour off the clear portion for use, and keep in the dark.

Unlacquered brass can be cleaned with rotten-stone and oil, and polished with a leather and dry whiting, or, if a reddish tint is liked, with common rouge. Tarnish can be removed with vinegar or lemon-juice; if very bad, with oxalic acid or vitriol; but these are poisonous, and must be used, if at all, with the greatest caution. Chased or embossed unlacquered brass, such as Benares or Moorish trays, should be cleaned thus:—Rub all over with lemon-juice applied with a soft brush, wash off the acid immediately with very hot water, soap, and soda, wring another brush and rinse thoroughly; dry quickly with soft cloths, and polish with wash-leather.

Bronzes, to Clean.—Bronzes should be only dusted and polished with a good leather. Rinsing them in beer is sometimes recommended; they must then be put in a warm place to dry. But if they are regularly dusted and polished nothing more is required.

Buhl Cabinets and Ormolu.—First clean off the dust and then polish with a soft woollen cloth dipped in olive-oil.

Cane and Wicker Chairs.—To clean cane and wicker chairs squeeze the juice of two lemons into half a pail of hot water, wash the chairs with the mixture, and dry in the sun.

Carpets.—Send heavy and valuable carpets to professional cleaners. The compressed-air method is most efficacious. The approximate cost of this process is as follows:—

Brussels and tapestry	(thorough cleaning),	4*d.* per sq. yd.;	2*d.* (beating only).	
Kidderminster, Dutch, and druggets,	„	5*d.* „	2*d.*	„
Velvet and Wilton pile ...	„	6*d.* „	4*d.*	„
Turkey	„	1*s.* „	4*d.*	„
Oriental and Axminster ...	„	1*s.* to 1*s.* 6*d.* „	4*d.*	„
Underfelts		„	1½*d.*	„
Tapestry and cloth curtains		from per pair,	1*s.*	

Carpets treated at home should first be beaten. For this purpose double each across a stout clothes-line, leaving the ends just clear of the ground. After as much dust as possible has been removed, lay it on the ground and sweep it. To do this thoroughly, sprinkle the surface with fresh and slightly-damp tea-leaves; do not be economical of them, liberality in this respect will pay. Use a soft brush, and only touch the carpet lightly, brushing always the way of the pile. It is best to go first over the surface with a hand-brush made of cane bristles, sweeping the dust into a pan. If the carpet has no pile, work towards either end or to the centre; then go over the surface a second time with a long-handled soft broom.

Carpets and Whitewash.—Workmen often splash a good deal of whitewash about. To remove the spots, damp them with a mixture of a teaspoonful of ammonia in one gallon of warm water. Another method is as follows:—Mix one pint of ox-gall—it must be fresh, otherwise it will leave an objectionable smell—with eight pints of warm soapy water, and apply with a clean scrubbing-brush. Then rub with a flannel dipped into a pail

of warm water—without any soap. Finish by wiping carefully with a dry cloth. When a carpet is being treated in this way, it is very apt to shrink; it should therefore be nailed down first.

Carpets Faded.—Sprinkle salt, slightly damped, on the surface, and brush with a carpet-broom. A second method is to dip a new mop into warm soap-suds, squeeze out most of the moisture, rub the mop into the surface, and go over the carpet again with a cloth dipped in warm water in which a little alum has been mixed.

Carpets Grease-stained.—Grease spots should be covered with powdered French chalk. After it has been scraped off carefully with a blunt knife, the carpet should be brushed with a clothes-brush. If necessary, use a second coat of the chalk. In this case, however, sprinkle underneath as well as on the top of the soiled surface. Leave it for twenty-four hours, and then brush hard. A small quantity of spirits of turpentine applied with a piece of flannel will have the same effect, and is perhaps a simpler method.

Carpets Moth-eaten.—When the moth has once appeared it is too late to resort to camphor, tobacco, or cedar; for all three are preventives, not cures. The best thing to do then is to lay a coarse towel damped with clean cold water on the carpet, and to press with a hot iron. As moths gather chiefly in corners, the carpet should be turned back at the edge, and the floor wiped with a hot solution of cayenne. The edges of the carpet should then be rubbed with a cloth wrung almost dry in the same mixture. Another well-recommended method consists in placing flock or cotton waste soaked in turpentine under the edges.

Carpets Tar-stained.—Tar-stains, which are sometimes caused by children, are best removed by covering the spots with grease, which the tar absorbs, and then washing off with soap and warm water, or by rubbing with benzine. Another method is to make a paste of boiling water in which fuller's-earth and magnesia have been mixed in equal quantities. When the paste has dried on the soiled surface, remove it with a stiff brush.

Chamois Leather, to Wash.—Wash the leather well in a strong lather of soap and water, and rinse it in hot water and afterwards in lukewarm water. Wring it well in a rough towel and dry it quickly in front of the fire, pulling it about and stretching it occasionally till it is quite soft and free from water.

Curtains.—Tapestry curtains can be cleaned for from 1*s.* a pair by the compressed-air process. Curtains done at home should be well brushed and shaken. Grease spots can be removed by applying benzine with a flannel rag. To restore faded colours, use the second method prescribed for carpets.

Decanters and Water-bottles, to Clean.—Fill them with warm water, add a table-spoonful of salt, and in an hour's time clean them thoroughly with a bottle-brush. Marks round the mouth of water-bottles may be removed with a piece of rag dipped in salt.

Dish Covers.—Use a soft rag dipped in paraffin, rubbing this again with finely-powdered whiting. Polish with a soft cloth.

Fire-irons.—To polish fire-irons, smear with a little paraffin-oil and then sprinkle with emery-powder. Brush off with an old clothes-brush, and polish with wash-leather. All steel-work can be treated in this manner. Rust will be prevented from forming if the surface of steel articles not in use is washed over with a paste composed of lime and oil, or if they are oiled and wrapped in paper before being put away.

Floors.—For floors, mix in a saucer three parts of fine sand and one part of lime; dip the scrubbing-brush into the mixture and use instead of soap. If the boards are very greasy, they should be covered in places with a coating of fuller's-earth moistened with boiling water. It should be left on for twenty-four hours before they are scoured as above directed. Soap should never be allowed to touch unpainted boards: its application is a great mistake, as the pores of the wood speedily become filled with a kind of glutinous matter which retains any dirt that may come into contact with it.

Frying-pans.—Frying-pans should be scoured out with salt immediately after use, and then wiped clean with a cloth. If black inside, rub over with a hard crust of bread. Finish off with water and a little cleansing-powder. A neglected frying-pan can be restored by filling it with cold water in which is a tea-spoonful of ammonia and a little soda, and letting it stand for some time. An omelet pan should never be washed. Wipe it with paper and polish with a cloth. If the bottom should "catch", put the pan on the fire with a little dripping in it, which when hot will dislodge the burnt particles.

Furniture.—Upholstered articles should be taken into the open air, and the dust expelled by beating them with the back of a clothes-brush. Cushions should be opened at the corners and a little camphor inserted, which will prevent moths from getting into them. The wood-work must then be attended to. Ink stains are removed by rubbing the spots with a clean cloth damped with oxalic acid, and then going over them again with another cloth and warm water. To remove mud stains, sponge simply with cold water and rub dry. When the wood-work has been carefully cleaned, it will require repolishing. For this purpose the following polish will be found useful—vinegar, sweet-oil, and spirits of turpentine mixed in equal proportions. Cork tightly and shake up in a bottle. Apply with a flannel, and then polish with a piece of old silk. Scratches in varnished wood-work may be removed by rubbing lightly with camphorated oil and soft flannel. If a French-polished table has been marked by carelessly placing a hot dish on it, apply a drop of linseed-oil to the place; polish with a soft cloth, and then rub in a little spirits of wine.

To re-stain various woods various processes are needed. In the case of mahogany, make a mixture of copal varnish and Indian red. When the correct shade has been obtained, apply with a soft brush. If the liquid thickens, thin it with benzine. In the case of oak, rub in with a cloth a little Sienna earth which has been moistened with linseed-oil.

Furniture: Mahogany.—First wash thoroughly with vinegar. Then

apply this polish, which renews the colour:—Into a pint of linseed-oil put four pennyworth of alkanet root and two pennyworth of rose-pink. Use an earthenware jar for the purpose, and let the mixture steep all night. Stir well in the morning, and rub the furniture all over with a rag dipped in it. Two hours later rub bright with linen rags or dusters.

Furniture: Mahogany Tables.—Polish with this mixture:—2 pints of vinegar, ¼ pint of methylated spirits, ¼ pint of linseed-oil. Apply with a very soft rag, and then rub off briskly with a soft duster. Use very little of the mixture, but go over the whole surface and rub well.

Furniture, to Remove Indentations.—Wet the indented place well with warm water, then take brown paper doubled five or six times and well soaked in water, and cover the bruises with it. Then apply to the paper a hot flat-iron until the moisture is evaporated. If necessary, repeat the operation till the surface is level.

Furniture, to Remove Scratches.—Spread a cloth well saturated with linseed-oil over the scratches. All furniture, whether painted or polished, should be wiped over with a flannel wrung very dry out of lukewarm water, and rubbed with soft cloth before applying the polish.

Furniture (Painted) Polish.—4 oz. methylated spirits, 3 drachms oil of almonds, 1 oz. orange shellac. Melt in warm water with a pinch of gum myrrh, apply sparingly and rub well in.

Furniture Polish.—(1) Cut ¼ pound of bees'-wax into thin shavings. Put it into a jar in a cool oven with as much turpentine as will cover it, and let it remain all night. In the morning it will be reduced to a kind of jelly. Use very little at a time and much "elbow-grease".

(2) ¼ pint linseed-oil, ¼ pint vinegar, ½ oz. butter of antimony, and a bit of resin the size of a hazel-nut stirred together in a gentle heat.

(3) ½ pint spirits of wine, ditto gum sack, ditto gum sandarach, ditto gum benzoin, ditto gum mastic. One pennyworth of each gum to be put into a bottle with spirits of wine, kept by the fire till dissolved, then strained into another bottle and corked.

(4) Mix linseed-oil and vinegar, put in a bottle and shake before using. Rub on very little at a time with a piece of flannel. Polish briskly and quickly with two or three rubbers, and finish with an old silk handkerchief.

This polish is recommended, as it does not form a crust over the furniture, and polishes as well as removing stains and grease.

New furniture is very apt to "sweat", that is, show a dampness; it must be well rubbed with an old silk handkerchief.

Grates.—Black grates should be polished with ordinary black-lead, rubbed on with a soft brush. If the grates are steel, a little emery-powder mixed with one table-spoonful of sweet-oil and two of turpentine will be required. Smear the surface with the mixture and rub in with a piece of flannel, then polish with wash-leather.

Ink Spots on Cloth or Carpet.—If ink is spilled on the carpet or clothing, take up as much as possible with a tea-spoon; then wash the spot with sweet milk, using a sponge or soft cloth, and not rubbing, but dabbing

softly. Very little milk should be applied at a time. Continue the process till the milk is barely tinted, and then wash with cold water and dry with a cloth.

Ivory, to Clean.—Clean carved ivory with a paste composed of damp saw-dust and a few drops of lemon-juice. Lay on thickly, let dry, and then remove with a hard brush.

Japanned Trays.—Wash with a sponge moistened with warm (not hot) water and white curd soap. When they are dry sprinkle with flour, leave for an hour, and then rub with a soft dry duster or piece of old silk. Papier-maché should be cleaned in the same way, but without any soap.

Kettles.—Crust or fur inside a kettle may be partly prevented by keeping in the kettle a well-washed marble, or oyster shell, or an "octopus". If the kettle is badly furred fill up with water, to every quart adding a drachm of sal ammoniac. It is a good plan to boil out the kettle once a week with soft water.

Lacquered Ornaments.—If ornaments are lacquered, soak them for ten minutes in a pan containing two parts water, one part aqua fortis, and six parts spirits of salt. A dark deposit will then form on the surface; it can be washed off with hot water. Dry in hot saw-dust. A less troublesome, though less effective, method is that of simply boiling the article in hot soda and water.

Lamps.—In cleaning lamps attend to each part separately. Wash the oil-receiver and burner in strong soda and water. The stand should be first rubbed over with a flannel slightly moistened in the paraffin, and then polished with a leather. Wash the chimneys in warm water containing a tea-spoonful of powdered ammonia and a small lump of soda. When clean, dip in cold water, wipe dry, and polish with an old silk handkerchief.

Linoleum.—Sweep linoleum first with a soft broom, then wash with warm water, and wipe dry with a cloth. Do not use a flannel, soap, or hot water. Faded colours are restored by rubbing in a small quantity of turpentine and linseed-oil. If the linoleum is very dull, a little vaseline, well rubbed in with a rag, will be found effective.

Linoleum, to Clean.—Wash with lukewarm soap and water, and dry with soft cloths. Polish with bees'-wax and turpentine. At regular intervals—about once in six weeks if the waxing is done weekly—rub all over with a little paraffin applied with a pad of soft rags to remove all trace of caked wax and freshen the surface.

Marble.—To clean marble, make a paste of two parts washing-soda, one part powdered pumice-stone, and one part powdered chalk and a little water. Cover the surface of the marble with it; leave it twenty-four hours to dry, and rub off with a cloth. If any stains remain, apply lemon-juice, and about a quarter of an hour later rub it off with a cloth.

Marble.—Wash with soap and water, and afterwards rub with a soft cloth and some sweet-oil to give the final polish.

If the marble is in a really bad state try this mixture:—Pound well

chalk, pumice-stone, and common soda, and sift through a fine sieve; then mix with enough water to make a paste. When stirred quite smooth rub it over the marble; leave it on for a few hours, and then wash it off with a soap lather and polish with a soft rag and oil.

Marble can be washed with a soft rag and soap and water, and wiped dry. Stains can be taken out with sand-soap or pumice-stone; marble-workers use pumice-stone. The slightest bit of acid on marble eats into it at once. To remove a coating of grease, make a strong solution of washing-soda thickened with fuller's-earth, and let the mixture stand on for a day or two.

Marble (Black).—Clean black marble with a paste made as follows:—Mix with water ½ oz. of finely powdered sifted pumice-stone, an equal quantity of powdered and sifted lime, and 1 oz. carbonate of soda; apply with an old rag. Wash it off with soap and water, and polish with a dry soft duster or leather. Boiled linseed-oil rubbed on with flannel is also good.

Marble (White) Fenders.—Mix well together 2 oz. of potash, 4 oz. of whiting, and two squares of yellow soap; cut in small pieces; put all into a small sauce-pan, and boil for a quarter of an hour. Apply with a large brush to the marble, leave it for a day, then wash off carefully.

Matting.—When made of any kind of straw or grass, matting should be cleaned with a crash cloth dipped in strong salt and water; it should be wiped dry immediately afterwards. The salt prevents the matting from turning yellow.

Mildew, to Remove.—Moisten the spot with clean water; apply a thick coating of Castile soap mixed with chalk scrapings; rub with end of finger, and wash off.

Mirrors.—Apply methylated spirits with a sponge; dust over the glass with the finest sifted whiting, rub it off with a clean linen rag, and polish with a leather or an old silk handkerchief.

Or add to ½ pint of boiling water 3 table-spoonfuls of vinegar, and a piece of chalk weighing about 2 oz.; pour off the milky fluid, and strain before the chalk has altogether dissolved. Smear this liquid all over the mirror; when half-dry, rub with linen rag very quickly.

Mirrors.—Mirrors should be rubbed with chamois-leather or tissue-paper (not newspaper). Finely-powdered whiting or cigar-ash rubbed on with a silk handkerchief will polish the surface. Fly-spots are removed by a sponge moistened with spirits of wine.

Oak Wood-work.—Furniture in carved oak, or the oak wainscot and doors in old houses are much improved in appearance by being washed with warm beer, and then treated with this mixture:—Boil in 2 quarts of beer a piece of bees'-wax about as large as a walnut, and a heaped table-spoonful of Demerara sugar. When both are dissolved, and the liquid well mixed, apply it to the oak with a large brush, and when the oak is dry, polish it with dusters or old rags.

Paint.—An excellent thing is sugar-soap used by painters; dissolve

6 oz. of the soap (which is in a powder) in a bucketful of water, dissolved in the ordinary way.

Paint, to Remove from Glass.—Use strong vinegar very hot, and a solution of oxalic acid, or a strong solution of soda.

Paint, to Remove the Smell of.—The simplest way to get rid of the smell of paint is to open all doors and windows. If time is an object, burn a few handfuls of juniper berries on a charcoal fire in the middle of the room, in the same way and with the same precautions as in disinfecting with burning sulphur. Windows and doors must be stopped up. After twenty-four hours the smell will be gone, and no injury will have been done by the fumes. Hay sprinkled with a little chloride of lime and left for one hour in the room is also an efficacious remedy. Or place an open vessel full of water in the room; a film will cover the water, and the smell will diminish.

Paint, Unvarnished.—Apply whiting with a flannel which has been dipped in clean water and wrung nearly dry. Dash well afterwards with clean water and rub dry with a soft cloth; wash and dry only a small piece at a time.

Picture-frames.—To clean gilt picture-frames, dissolve a small quantity of flour of sulphur in a pint of cold water, taking care not to make the water too yellow. Then boil four onions in the liquid. Strain quickly, and, when cold, apply with a soft brush. The gold-paint as sold in colourmen's shops is also very efficacious and easily used. If the frame be occasionally sponged with water in which onions or garlic have been boiled, the gilding will be preserved. When the frame is in fairly good condition, wiping it in cotton waste dipped in liquid ammonia will be found effective.

In the case of glass frames, if possible first remove the pictures, otherwise only one side of the glass can be cleaned. Damp the surface with ammonia-water, and rub with wash-leather. To polish, use an old silk handkerchief. Stains on the glass are best removed by sponging with a mixture of salt dissolved in three times as much cold water. A brilliant polish can be obtained by rubbing in a little dry whiting with a woollen cloth. On no account must soap be used, or the glass will be dulled, and grease and dirt will be gathered.

Picture-frames (Gilt).—White of egg gently rubbed on with a feather will remove all specks of dust and fly-marks. If the frames are very dirty they must be rubbed all over with spirits of wine, and then washed with soap. Gilt frames of every description require the greatest care, and after a thorough dusting with a feather-brush should be merely sponged with a very little turpentine, not too wet, but moist enough to remove the dirt and fly-marks.

Stone Steps, to Clean.—If they are good, wash with hot water, and then hearth-stone them. Grease can be removed by pouring hot soda and water over the spots, and then covering them with a paste of fuller's-earth and boiling water, which should be left on all night. If the steps are

boiling water. The greenness will gradually disappear.

Tiles in Hall, to Clean.—Once a week wash the tiles well with soap and water, and about every three weeks rub them with a flannel dipped in linseed-oil. Some use milk and others sand and olive-oil, but linseed-oil alone is best.

Venetian Blinds.—Let down the blinds, secure the cord to its hook at the side, and untie the knots at the bottom of the blind. Slip out the thin laths one by one, but be careful to leave the two cords hanging very straight. In this way remove the whole blind except the top of the framework, and the thick lath at the very bottom. The latter can be removed by taking out the nails at the bottom of the webbing; but this is quite unnecessary, for it can easily be washed as it is. Wipe the webbing and cords with a damp cloth; place the laths singly on a table, and wash them with soap and water, using a soft brush. Dry them thoroughly and restore to their places, one by one; re-thread the cord and knot firmly. If the laths have been repainted, be sure that they are quite dry before re-threading them. If a new cord is required, sew the end of it on to the old end, and by this means pull the new piece over the rollers. When it is in place, cut off the old and fasten the new in its stead, afterwards threading the laths.

Wall-paper.—The method of cleaning wall-paper with bread is as follows:—Take a white loaf quite a week old, and divide it into convenient pieces. Begin at the top of the paper and wipe downwards lightly, using the crust merely as a handle. Do not wipe crosswise or upwards. The dirt and crumbs will fall together. After going all round the upper part of the room once, begin again a little above the bottom of the strip already done and proceed in the same manner. Wipe very lightly, or the dirt will be rubbed in and not off. Dough can be used very effectually in the same way.

Walls.—If the walls are painted, sponge with tepid water. If papered, do not damp them, but merely sweep lightly with a dry duster fastened on a broom. Rubbing with stale bread or a small bag of wheat-bran will remove any dirt left after sweeping.

Windows.—Sponge window frames and sashes with warm water and soda. To remove spots on the glass, apply cold water and soda with a piece of sponge, and rub with a dry rag. Finish by polishing with whiting and chamois-leather.

In conclusion, remember that "spring-cleaning" is not meant to take the place of the daily and weekly household cleaning; its purpose is to attend particularly to such matters as can only be conveniently seen to at this season, such as painting, paper-hanging, whitewashing, carpet-cleaning, &c. Even in the best-regulated households dirt gathers in a most unaccountable manner in nooks and corners sheltered by pieces of heavy furniture. It is only when they are removed and the carpets taken up that such accumulations can be got rid of. Finally, a word of warning to the young housewife, not to go to the other extreme and overdo things

may here be appropriate. Perpetual cleaning and upsetting the rooms puts everyone out to no purpose. Every woman should be proud of her home, and take a delight in keeping her household goods in order. She should not, however, make such an idol of her house as to spend time in cleaning and polishing when she ought to be resting or taking exercise in the open air. Making one's self miserable over every scratch and spot on the furniture will only result in an infinitely worse calamity—premature wrinkles. Things cannot last for ever, and a wife's health and happiness are a thousand times more important to herself and her husband than all the pots and pans and polished surfaces in the world.

The Vacuum Cleaning saves an immense amount of labour. The dirt is removed by suction into long tubes which convey it out of the house and into the van of the cleaner, where it is swiftly turned to mud. A large house can be effectually cleaned in a single day by this method, the tubes entering at the windows of all floors. The rooms are prepared by putting away all small articles, piling chairs and tables on beds and sofas, and it is advisable to have all these thoroughly cleaned the day previous, as any dust falling from them can then be removed with the rest by the cleaner.

COOK'S DEPARTMENT.

Cook's Personal Appearance.—The care of the person is primarily a matter of health and comfort, but it is also cultivated for the sake of appearances. A cook's hair and hands require special attention. Daily brushing to free the hair from dust, and a tidy method of dressing it, are important. The hands are best washed in hot water before commencing pastry making, or whenever a cool hand is necessary. Thorough drying is important, for carelessly dried hands are always "grimy", and soon become chapped and rough.

The removal of stains and odours from the hands is a matter which the cook should not neglect. Slight discoloration, treated promptly, will be removed by lemon-juice. Even a cut lemon from which the juice has been squeezed should not be thrown away, as a daily rubbing will improve the colour of the hands and assist in keeping them smooth and sweet. For strong odours, such as onion or garlic, a solution of borax is excellent. A simple remedy for burns and scalds in a convenient, fixed place in the kitchen is very necessary. Nothing is better for this purpose than "Carron oil"; it will keep for years, and can be obtained from any chemist. If the finger-nails are to be clean, they must be cut short.

Cook's Dress.—The comparative merits of the various kinds of underclothing are fully discussed elsewhere, but, in passing, it may be noted that a pair of warm, easy-fitting stockings are useful for those who have to stand much. Badly-fitting shoes, down at heel, with thin soles, are common enough, though nothing is more productive of a general tired feeling. The shoes should have fairly stout soles and broad heels, decidedly low, and should fit comfortably. Thin soles tire the feet and absorb moisture, and many cases of coughs and colds are due to damp cold feet. High heels throw the weight of the body on the front of the feet, and—a most important point—the muscles of the back suffer from the strain. Finally, tight shoes or boots impede circulation, and so cause cold feet. The knees, too, are injured by habitually wearing high heels.

The gown should be of washing material all the year round, but stout stuffs are, of course, needful in the winter. Among the best are drills, Oxford, galatea and regatta cloths. For summer wear, hollands, linens, or linen-finished cloths are all excellent, while the time-honoured fast prints both look and wash well. The objections to woollen gowns are many. The dust from flour and other cooking material, as well as from coal ashes (inseparable from the cook's work, however carefully she does it),

gives the gown a dingy look. Grease splashes, too, must be frequent; hence, in a short time the garment acquires an unpleasant odour. When of dark colour, and worn for months at a stretch, it is apt to be especially offensive. In any exceptional cases where cotton cannot be worn, the next best thing is a thin washing serge of gray or other light colour. It is worth noting, with regard both to cotton and wool, that diagonally-woven fabrics wear the longest.

Fig. 202.—Cook's Dress.

The gown should be made with the skirt gathered and sewn into the bodice (fig. 202). This dispenses with waistbands, of which the fewer the better where active labour is in question. The sleeves must fit easily, for pressure on any part of the arm muscles is fatal to good work. With a tight sleeve many of the most important of the kitchen duties will be indifferently performed, for example, the kneading of dough, the whisking of batter, the creaming of butter, and all kindred operations. Neatness and comfort should be the motto; and those who have hitherto given no thought to the matter, but are willing to test for themselves, will be surprised to find how greatly work is facilitated by suitable and properly fitting garments.

The minor details of the cook's costume in the matter of aprons and sleeves should be rigidly observed. The former are best of stout "dowlas" for rough work; while for cooking operations linen or diaper is most useful. A good-sized bib and a capacious pocket are essential. Sleeves which cover the elbows are comfortable and protective. A draw-string at the top, with or without a frill, is to be recommended; but a plain cuff or wristband is preferable to a wrist frill. A cap, to fulfil its function as a head-covering, must be of good size, and substitutes for the real thing will be discarded by practical people. Many of the shapes worn by nurses are just as suitable for kitchen wear, especially those with a draw-string that open out flat for washing.

THE COOK'S DUTIES.

Qualifications of a Good Cook.—The primary duty of the cook is to recognize her responsibility in connection with the kitchen and its adjuncts, whether the actual amount of work is great or small, and whether the mistress gives assistance or not. Otherwise, "anybody's work" will be "nobody's work"; and, further, she may be tempted to relegate to another something within her own province. She must also be made to grasp the fact that she is not infallible, and that, however competent, she has a great deal yet to learn.

Few so-called good plain cooks of the day are to be depended upon entirely. One is very good at pastry, but unable to make melted butter; another thoroughly understands joints, but always fails with soups. The cook must be practical and master the various branches, commencing with the plainest dishes. For every failure there is a reason, and the remedy is often close at hand. Intelligence must be brought to bear, and the making and baking of a simple cake or loaf of bread should be thoroughly learned before elaborate sweets are attempted; knowledge gained in an elementary department always counts in the advanced. If a roast joint is served well, and the hash is tender, with the gravy free from grease, the making of entrées need cause no alarm. Every simple dish served to perfection means a step towards perfect service of the more complicated and difficult dishes.

Cook's Daily Duties.—It is not possible to do more than give a broad, general outline of the work which must be performed in an average household. The first thing is the preparation of breakfast. Punctuality here is especially necessary, as hurry in the morning means hurry all day. A littered kitchen has a most dispiriting effect; therefore, as much work as possible should be done overnight. Probably the care of the dining-room or breakfast-room—at any rate of the fire—or of the hall and steps, and the brass-work outside, may fall to the cook. Kitchen, scullery, and larder have to be swept, dusted, and tidied, and mats and rugs shaken or beaten. The wiping of the bread-pan, the scalding of milk jugs, and the overlooking of provisions liable to spoil, are some of the little duties that young cooks are apt to omit unless they are supervised by their mistresses.

The actual work done before breakfast depends upon the time fixed for the meal, as well as upon the season of the year. A plentiful supply of hot water should be secured, and where the boiler is not self-filling, it should be filled overnight. Cinders should be sifted, not merely for economy, but also on account of their usefulness when a bright fire is wanted quickly.

As soon as possible after breakfast orders for the day should be given and acted upon. It is, however, advisable to look ahead, and if they can be given for the morrow, better meals at less cost will be obtained.

The cellar and its contents must not be out of mind because out of

sight; and the earlier the steps are swept down the better, since it is useless to tidy rooms on the ground-floor if dust and dirt are brought up on the feet from below. A daily clearance of odds and ends occupies but a few minutes, but at longer intervals the work will become quite formidable. What is useless is best got rid of at once, and what has a use should be put in its place. This habit, once formed, can be easily kept up, and brings its own reward.

The answering of bells at the back-door falls to the cook in the forenoon, and in many houses throughout the day, but at dishing-up time some reciprocal arrangement with a fellow-servant is advisable, and no sensible mistress will object. The leaving of some dishes at a critical moment means the spoiling of them. After the kitchen dinner the kitchen should be made neat for the afternoon, and where late dinner is the rule, the initial preparations should be made as early as possible.

The cook should be taught to exercise forethought, to look a little in advance of her immediate duties. The stoning of raisins, washing and drying of currants, shredding of candied peel, blanching of almonds, grating of dry cheese, sieving of bread crumbs, and drying and pounding of bread crusts for "raspings", are a few of the operations that can be performed in advance. They facilitate the making of little dishes for emergencies, as well as the general work of the day.

The Meals.—Of the meals, the dinner at any rate, whether early or late, should be planned a day in advance. Fag-ends must be dealt with, particularly in hot weather, on the spur of the moment; but, except in emergencies such as sudden illness or unexpected visitors, there is nothing to prevent the prearrangement of the main dishes. The system prevents monotony and ensures better work; instead of a hasty decision for to-day because time presses, there is a leisurely consideration for the morrow, and plenty of time is allowed for the proper cooking. To order at ten o'clock lentil or pea soup, or boiled pork and peas-pudding, or a beef stew, or steak-and-kidney pudding for dining-room luncheon or the servants' dinner at one, leaves too short a time, even if all the food required for the purpose is in the house. So, again, a pudding, however simple, that contains suet often wants several hours' cooking. If orders are not given in advance, the cook may find herself without some important ingredient at the last minute. The mistress should note daily on the kitchen slate the articles required; those in daily use should not be allowed to run out, while there should be a few others for emergency.

It happens sometimes that an inexperienced housekeeper plans, or is persuaded into consenting to, a menu which is not only beyond the personal powers of the cook, but by reason of its quantity or quality, or both, taxes unduly the capacity of the kitchen apparatus. Therefore, it will be well not to compel or allow the cook to attempt too much; better a few dishes perfect in detail than twice the number lacking some important adjunct or badly cooked and served. Again, some expect too many hot dishes, and consequently get them lukewarm. It is equally important that cold dishes be served cold, that is, that they be made in

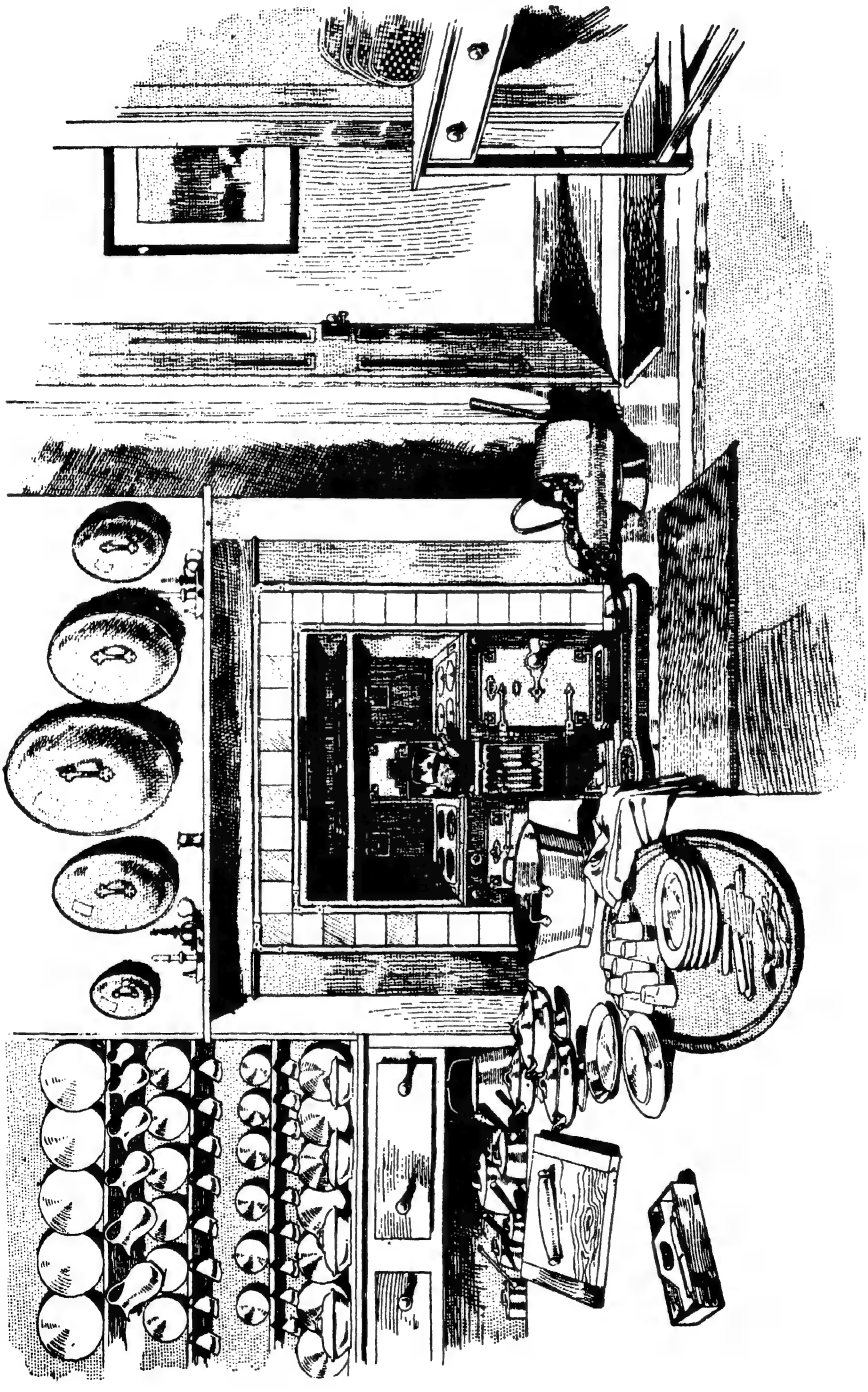


Fig. 203.—Kitchen, with Double-oven Range.

plenty of time. Further, the order of dishes in relation to their colour and flavour must receive attention. The reconsideration possible in the case of a menu ordered in good time will often lead to the rectification of errors committed in respect of any of these matters.

Punctuality is a virtue important to all, but indispensable in a cook. It is just as easy, once the habit is formed, to serve meals to the minute as to be always ten minutes late. At the same time, she should make a study of what may be termed "dishes in waiting", dishes which can be partly prepared beforehand and then finished off when they are wanted.

Unless she is a tidy and methodical person, it is impossible for her to perform her duties properly. A table is easier to work on when it is clear than when littered from end to end. It takes almost as long to move articles from place to place as to put them away at once; the former practice means waste of labour as well as of time. Moreover, food or food utensils left about produce bad smells, and attract flies, mice, and other pests. Little drops of milk allowed to turn sour, and butter and lard left in paper, mean a lamentable loss and much discomfort and inconvenience.

Waste.—Waste in the kitchen is a subject on which a volume might be written. It is dealt with in "Household Economy" and elsewhere in this book, but it cannot be mentioned too often. Very many persons make the mistake of associating waste only with food actually thrown away, and so long as they do not toss remnants into the gutter or dust-bin they feel that they have done their duty in this respect. But the food wasted by bad cookery exceeds in amount that wasted in all other ways combined.

Food prepared in excess of requirements forms also an imposing item in many homes, but, because the fact is usually unsuspected, the evil is unchecked. Adjuncts such as sauces and vegetables, especially potatoes, are very likely to be wasted in this way. Bad habits grow, and in times of scarcity and consequent dearness of common commodities little leakages in the household purse become serious matters.

Use of the Dust-bin.—It is not enough that the cook should herself abstain from misuse of the dust-bin; she must see that no one else throws into it anything that can set up putrefaction. It is not the place for moist refuse of any sort; hence tea leaves, as well as vegetable peelings and animal refuse, must be rigidly excluded. A cover should be provided, and frequent emptying should be insisted upon. The best form is a portable pail or box (fig. 204).

Cook's Weekly Duties.—The weekly duties vary with circumstances. Orderly habits greatly reduce the amount of periodical work that is necessary, but there are always weekly cleanings to be done, a complete turn-out of the kitchen, floor-scrubbing, the cleaning of linoleum or shaking of matting, the sweeping and beating of mats, extra attention to the range and flues, and perhaps to the gas-stove, and the cleaning of the floors and shelves of the pantry and other rooms belonging to the kitchen department. Where space is scarce such things as jams and pickles are kept on the pantry shelves, which should be brushed occasionally, a dry day being

chosen when there is plenty of wind. The kitchen cupboards may not need scrubbing weekly, but tables and dressers, covers, moulds, and bright utensils of all sorts, windows, blinds and curtains, and the cook's own bedroom, with any other she has charge of, all will require attention. A special day for small duties, such as the filling of jars, should be observed. The cleaning of the cistern and the removal of fur from tea-kettles and boilers are periodical duties not to be neglected.

As regards the particular days of the week or times of the day for the performance of these tasks each house must have its own regulations. Many servants make the plea of having "all clean for Sunday" the excuse for deferring as much work as possible until the end of the week, when it is apt to be done in a slovenly manner. The washing of cloths and the cleaning of bedrooms can be done as well early in the week, so as to leave the end for the kitchen. So long as nothing is shirked, it is often wise to

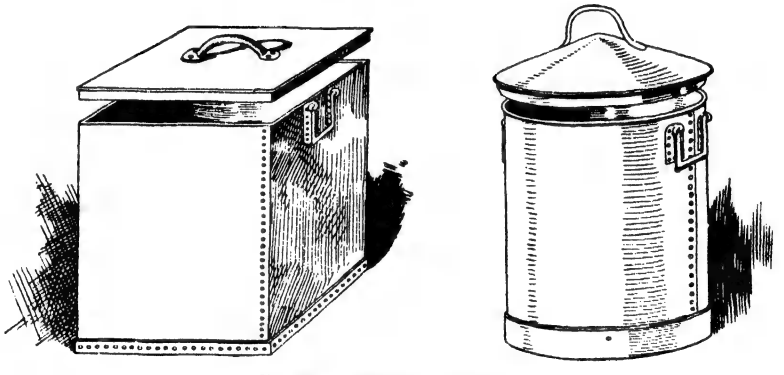


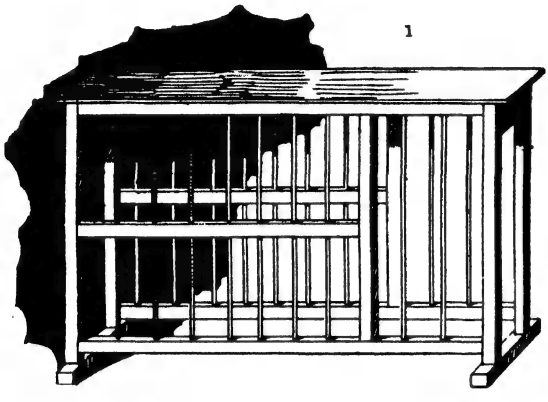
Fig. 204.—"Sanitary" Dust-bins.

leave the precise arrangement to the cook. Although she should, as a general rule, have certain days for particular duties, a departure from this order should be permitted whenever extra cooking, the making of jams and pickles, or anything else necessitates it.

Extra Duties.—Too much emphasis cannot be laid on the necessity of a perfectly clear understanding as to what is expected of a cook outside her own domain. This is an important matter in the case of all servants, but especially where the cook is concerned. The amount of extra assistance a cook or cook-general is able to render must depend on circumstances, for instance, the style of living, and the frequency of visitors. The difference between a breakfast of tea or coffee and boiled eggs, supplemented by preserves, and one of grilled fish or kidneys, an omelet or fritters, and hot toast, with perhaps porridge besides, will serve as an illustration. In the first instance the cook could be away from the kitchen up to a quarter of an hour before serving breakfast; in the second the initial preparation, the actual cooking, and the serving precisely to the minute if the dishes are to be worth eating, will demand her whole attention. Again, where cold breakfast dishes are usual, and the mid-day

meal consists of chops or a hash with a simple milk-pudding, the cook is able to lend a hand here and there to an extent which is impossible where dainty little hot dishes, not of necessity costly, must be prepared.

During the spring-cleaning, or in case of the illness or holiday of a fellow-servant, or the absence of the mistress, the cook's practical assistance or advice in various household departments may be wanted, and there is no objection to this so long as due notice is given, and the daily work of the kitchen arranged accordingly.



Where home washing is the rule, help in starching and ironing is frequently expected, as well as the washing of all the kitchen towels. In houses where only a second young servant is kept as a general help, the cook may be held responsible for the proper performance of many duties which properly belong to the housemaid, such as the washing of glass, china, and silver, unless the mistress undertakes them.

"Kitchen knives and master's boots" are given by many writers as among the cook's ordinary daily duties; but they come more fittingly in the present section, since, with a boy or handy man about the house, she is usually relieved of such jobs.

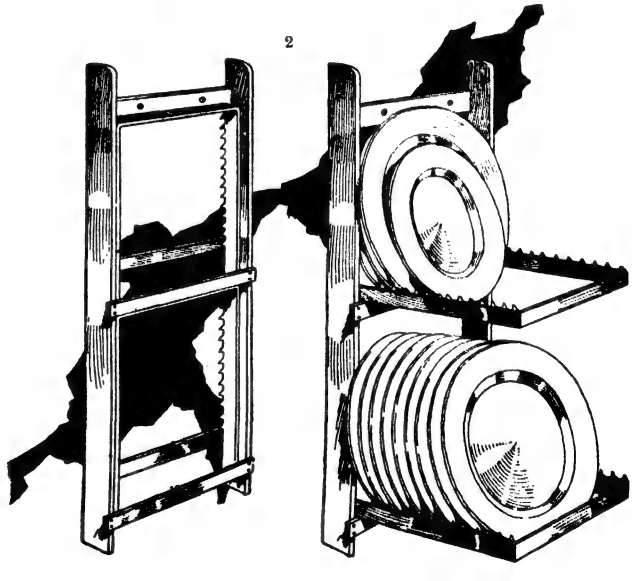


Fig. 205.—Plate-racks.
1. Ordinary pattern. 2. Helpmate Folding Plate-rack, closed and open.

Once, if not twice, a week it is the duty of the cook to pour boiling water with plenty of soda in it down the sink-hole, to carry away the grease that collects there. It is also one of her weekly duties to give the range an extra clean.

Washing up.—The washing of all utensils as soon as possible after use is greatly to be recommended, while the leaving of anything longer

than is necessary should certainly not be tolerated. The cook who habitually puts dirty sauce-pans aside until the next day has a very inadequate appreciation of her duties in this respect. It is very important to start with clean cloths and brushes for pans and sink; they should be washed daily after all else, and then dried in the open air. Hot water with soda or borax and a rinse in clean water is sufficient; an occasional boiling is, however, good for the cloths. The actual washing up may be reduced by a little forethought in the removal of the "first coat" of grease from knives and plates and dishes. Paper (including newspaper) will do for the purpose; keep odd pieces on a nail, and burn them as soon as used. If grease spilt on stove or kitchen floor is removed in the same way, the necessary washing of cloths is reduced considerably. Remove all fragments of food

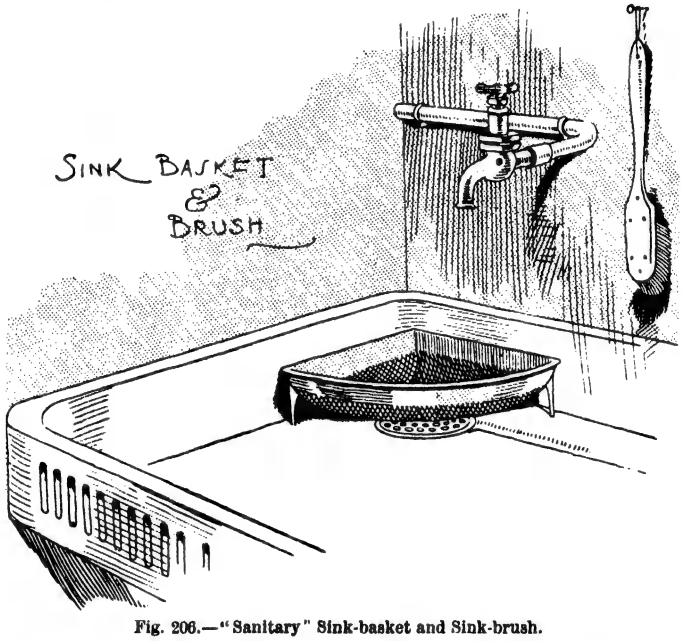


Fig. 206.—"Sanitary" Sink-basket and Sink-brush.

from plates and dishes, and wash them in hot water with soda; then rinse them in a second supply of cold water, using another clean cloth. Do not allow these cloths to get mixed, but keep each always for the same use. Drain in a slanting direction, or wipe with a cloth, if there is no plate-rack (fig. 205) at hand. Remember that hot water must be really hot; a small supply of boiling water is better than a large quantity of lukewarm, with which proper washing up is impossible. Fat that has hardened upon plates and dishes, and cannot be wiped off, should be scraped off. Knives want careful drying as well as washing; no metals left damp or greasy can take a polish.

After all the utensils have been cleaned, wash the tubs, dry them, and put them out of doors. Then flush the sink with boiling water and soda, and flush it again freely with cold water. This helps to prevent unpleasant odours and ensures freedom from grease. The sink-brush (fig. 206)

should never be used for any other than its proper purpose, and must be rinsed after use. Disinfectants are good things in their place, and a strong solution of permanganate of potash may be poured down the sink as required, but daily cleaning is of paramount importance.

CARE OF UTENSILS.

For the sake of easy reference the utensils common to the kitchen are separately dealt with below; but the same general principle applies to all. Leave nothing dirty that can be cleaned at once, and do not attempt to polish any metal vessel that has not first been freed from grease and properly dried. A final rub with crumpled paper after the cloth has been used ensures thorough drying, and absorbs any trace of grease that may have been left. Tinware of all sorts, from sauce-pans to gravy-strainers and dish-covers, should be treated in the same manner. All articles should be dusted before use; and although this is especially needful for jelly-moulds and everything used for delicate cookery, it is well to form the habit and in no case to omit it, for it is the only way of guarding against the admission of foreign substances.

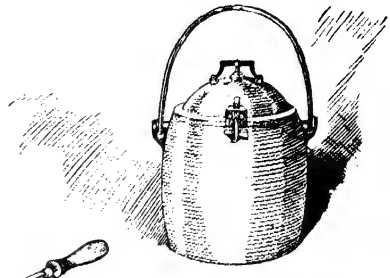
The lids of sauce-pans need minute attention. Many cooks polish up the outside and leave the inside of the rim dirty. This means the spoiling of the colour of white soups as well as of the flavour of anything cooked in the pan. Where polishing-pastes are used, care is needed to ensure that only a small quantity is applied, and that it is removed with the polishing cloth; also that none gets into the interior of the lids, where it is dangerous as well as dirty.

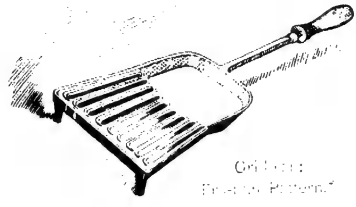
Metal Pans.—When iron pans are left sooty at the bottom, the contents take longer to boil, and are much more likely to burn. An old pan should be kept for boiling onions, as it is most difficult to get rid of the flavour.

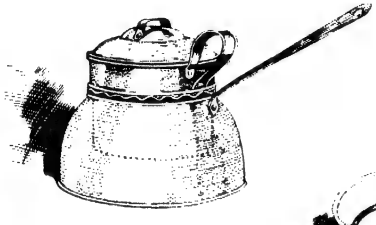
For copper sauce-pans and stew-pans have at hand a mixture of two-thirds of fine silver sand and one-third of salt; soap the hand, then dip it in the mixture, rub the inside of the vessel clean, rinse in warm water and dry it. Then treat the outside in the same way. There is no objection to the use of a cut lemon for the removal of external stains. These utensils must be re-tinned as soon as the coating begins to wear off, and should not be used for acids.

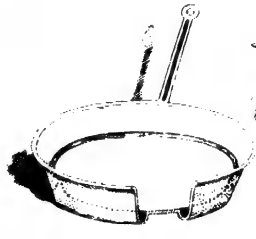
Aluminium pans improve the appearance of the kitchen, and are now used by many in preference to copper. The makers issue directions for cleaning, and sell a paste for polishing. Nothing is more easily kept clean than aluminium, but soda must not be used in cleaning it.

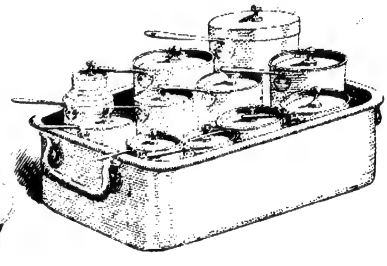
The best steel pans are the "sanitary seamless". Clean them inside and out with a soapy hand dipped in sand, and polish them outside with a leather dipped in powdered whiting. Never omit the final washing and drying of the interior.

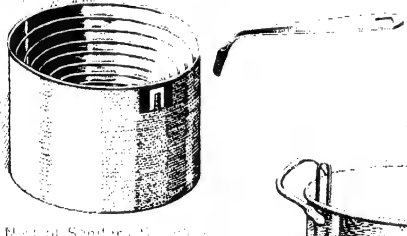


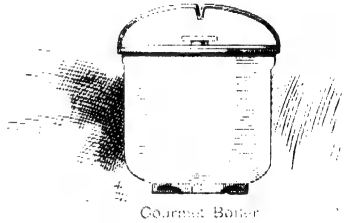


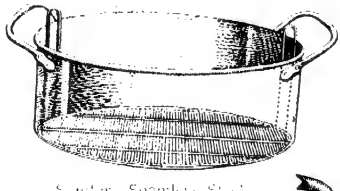


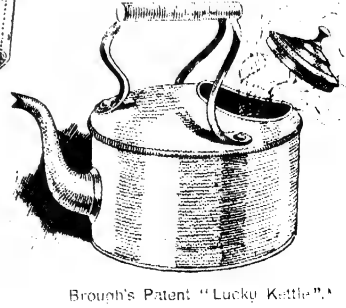












* T. & C. Clark & Co. Wolverhampton

† W. Sugg & Co., Ltd. London, W.C.

§ Gourmet & Co. London, W.C.

COOKING UTENSILS.

Tin pans are cleaned in the same way. The "block" tin are excellent, and those with copper bottoms are to be recommended for hard wear.

Enamelled pans may be of either steel or iron. The former combine lightness with strength; the latter are more durable if care is taken to prevent cracking. To clean the enamel, proceed as in the case of steel; but if it is stained, follow the directions for copper. Thin, low-priced enamel ware is better avoided, as the enamel chips and the contents are apt to burn.

Besides, there is the risk of any chipped morsels being swallowed. Tinned iron pans, black outside and bright inside, are useful for many purposes.

Earthenware Pans.—The "fireproof" china is highly recommended for sick-room and refined cookery generally, for it is non-absorbent and as readily washed as a tea-cup. Fireproof earthenware is lower in price and much stronger; the outside is rough and the interior glazed. This is admirable for stews and curries. Any burnt patches must be promptly removed. The same remark applies to the common earthenware stew-jars and baking-dishes, which may fittingly be grouped with sauce-pans. Those with glazed linings are the best, being so much more easily washed. It is owing to the absorbent nature of unglazed ware, and the difficulty of washing it perfectly, that after it has been a short time in use complaints are sometimes heard that everything cooked in it has the same taste. After use it should be filled immediately with clean water, and washed with plenty of hot water and soda.

A "scraper" which accommodates itself to a pan of any size or shape is a convenient thing, which should be in every kitchen. The new seamless steel saucepans are rounded at the bottom and therefore easily cleaned.

Never put a pan away damp; give it time to dry in a warm place, though not close to the fire, turning it as needed. The pans will be more efficiently aired by being placed on a latticed than on an ordinary solid shelf. The lids should not be left on, but should be hung below the pans.

A weekly boiling of sauce-pan lids, or a wash in hot soapy water, is strongly recommended.

Wooden Articles.—All kinds of wooden articles, tables, and boards should be cleaned as follows:—Wash first with a clean flannel wrung out of hot water; rub a little soap on the brush, dip it in fine sand, and scrub with the grain of the wood. Rinse very thoroughly to remove the last traces of grit, and dry well with a clean stout cloth. To remove obstinate grease marks, a paste of fuller's-earth and hot water should be made, and spread on thickly. It should remain for a couple of days, when the articles may be treated as described.

Jelly-bags and Pudding-cloths.—Jelly-bags and pudding-cloths require separate attention. The former must be emptied at once and put in hot water, which should be stirred with a stick and renewed once or twice, enough cold water being afterwards added for the bags to be wrung out by hand. They should be rinsed finally in clear water, pulled into shape, and dried in the open air. Wrap them up before putting them away.

Pudding-cloths should be scraped if necessary, and boiled in plenty of hot water with a pinch of soda and no soap; they should then be well rinsed, dried in the open air, and kept in a clean place.

Sieves.—Few kitchen articles are more abused than sieves. They are often used only in the middle, which is soon in a hole, or allowed to become clogged at the edges, only the centre being properly washed. When washing is really needed, put the sieves, whether of wire or hair, into water to soak until washing-up time comes. Wire sieves must also be brushed, and are best left under the tap for the final rinsing. "Brass wire" allowed to become green is not only dirty but dangerous. The wooden rims should be scrubbed in the usual manner.

Tinware.—A jelly-mould would be ruined if employed for a Christmas-pudding, and a cake-tin, suitable for a plain mixture requiring an hour to bake, would be inadequate for a rich plum-cake requiring six or eight hours. Something much stouter is needed for the latter; very low-priced

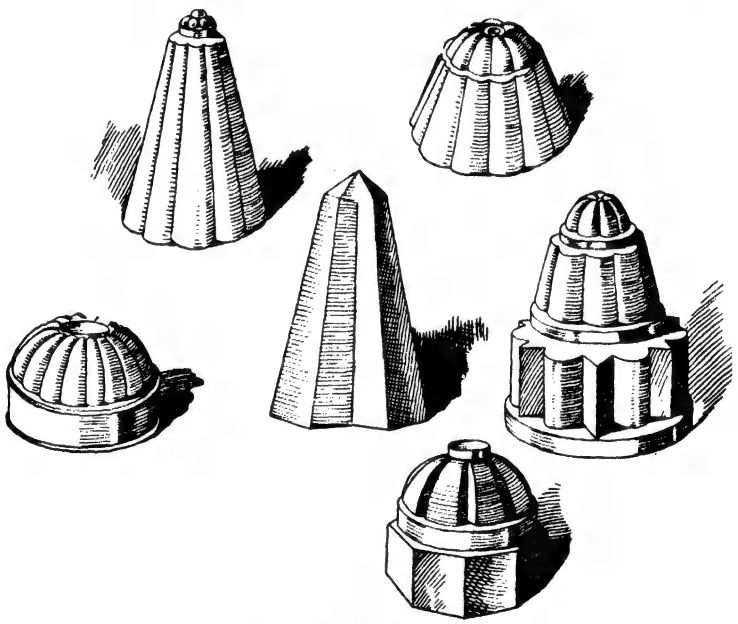


Fig. 207.—Fancy Tin Moulds.

tinware, however, is useless for anything that has to be baked. Dripping-tins used for different things, such as Yorkshire-puddings and gingerbread loaves, will last longer if they are fitted at the bottom with hoop-iron. The same is true of bowls for the kitchen sink, and other articles from which long wear is expected.

For the stout articles, including oven baking sheets—these are better of steel or copper, however—which are apt to be burnt, scraping and brushing are needed; sand assists the removal of the burnt parts. They may then be polished, but if whiting is used, see that none remains in any of the corners. Whiting or anything else of a cloggy nature is altogether

unsuitable for such utensils as strainers, frying-baskets, or egg-whisks (fig. 208). These must be perfectly washed and dried. The exteriors of patty-pans and tartlet-tins (fig. 209) must be as clean as the interiors, or the next

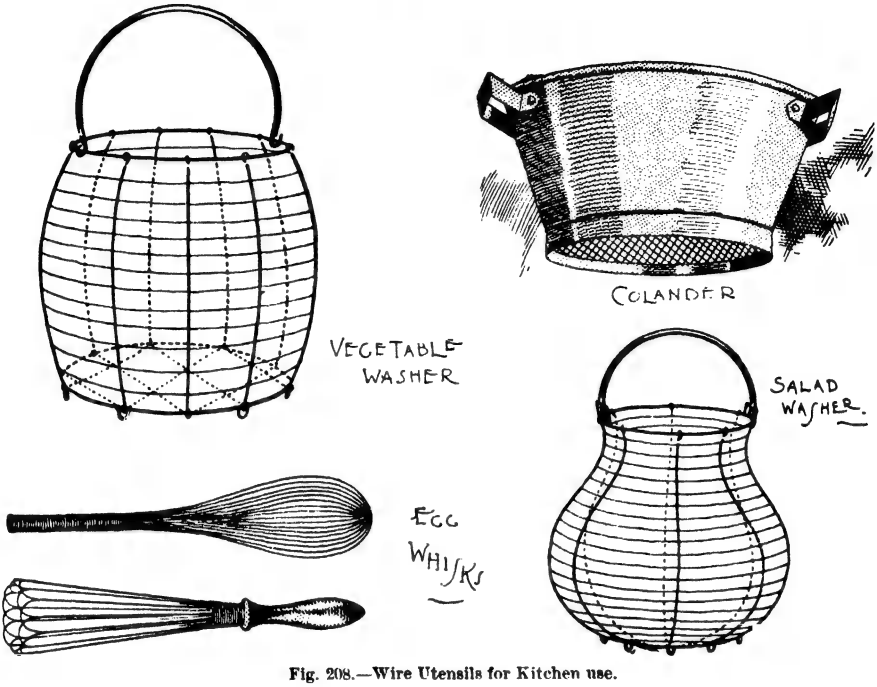


Fig. 208.—Wire Utensils for Kitchen use.

"batch" will burn. When it becomes really necessary to wash store canisters with hinged lids, they must be dried by the fire for some hours

Fig. 209.

before they are re-filled, or the hinges will rust and the canisters soon become lidless.

Though well-brightened tinware—particularly a row of dish-covers—improves the appearance of the kitchen and is a source of just pride with many cooks, yet enamelled articles save much labour and have many good

points. *A propos* of covers, never neglect the insides; otherwise they will impart an unpleasant flavour to the food.

Tinware has been dealt with at length because every kitchen contains a large number of tin articles. Of course all kinds of copper and other vessels may be cleaned according to the directions for sauce-pans.

THE KITCHEN RANGE.

To avoid confusion, all ranges that require fixing, *i.e.* setting, will be spoken of simply as ranges, while the portable ones will be termed "kitcheners". The majority of people in England are, as regards the choice of a range, dependent upon the landlord, but those who, like most tenants in Scotland, are free in this matter, will be well advised to procure the best kind that they can afford.

The important points are—simplicity; good material, with plenty of strength in the parts subjected to hard wear; a moderate consumption of fuel; an even and regular diffusion of heat, with an easily-regulated supply of it to any part of the stove, whether hot-plate or oven.

The advantages of the kind of range known as "convertible", a close range that can be changed into an open fire, are—that after the cooking of the day is over, it gives an open, bright, and cheerful fire, requiring no regulation of dampers; that it keeps the kitchen well ventilated, is useful for airing clothes, and makes a comfortable fire to sit by; that the consumption of fuel is small, not more than a fourth of what would be used if the range were always closed; and that, when the fierce draught of the close fire is stopped, it burns for hours without attention. The convertible arrangement should be simple, so that the change may be effected quickly.

Dampers.—Dampers are sliding plates intended for regulating the draught and consequently the speed of combustion. The ordinary dampers leave a good deal of guesswork to the cook, even when she takes the trouble to manipulate them. Patent indicating dampers (fig. 211) show the speed at which the range is working. This is of marked advantage with two ovens, when a fierce heat is wanted in one and a moderate heat in the other.

Flues.—The illustration (fig. 212) should be of assistance to those whose ideas about flues are somewhat hazy, not only in their relation to oven heat, but also in the matter of construction and cleanliness. Servants often think that when they have opened one or two of the doors and swept away the soot within reach, they have cleaned the flue properly; it is absolutely necessary that the brush should follow the flue throughout its entire length, and for that reason its course should be traced and understood, otherwise some portion of it may be overlooked. When once the principle has been grasped, the rest is simple. Detailed instructions for cleaning the flues are given beneath the diagram.

Complaints, some of them well founded, are often made about ranges

with insufficient bottom heat; indeed, it would be as easy to get the water in a tea-kettle to boil by applying a light to the lid, as to bake anything properly in an oven that only gets top heat. The best range in the world

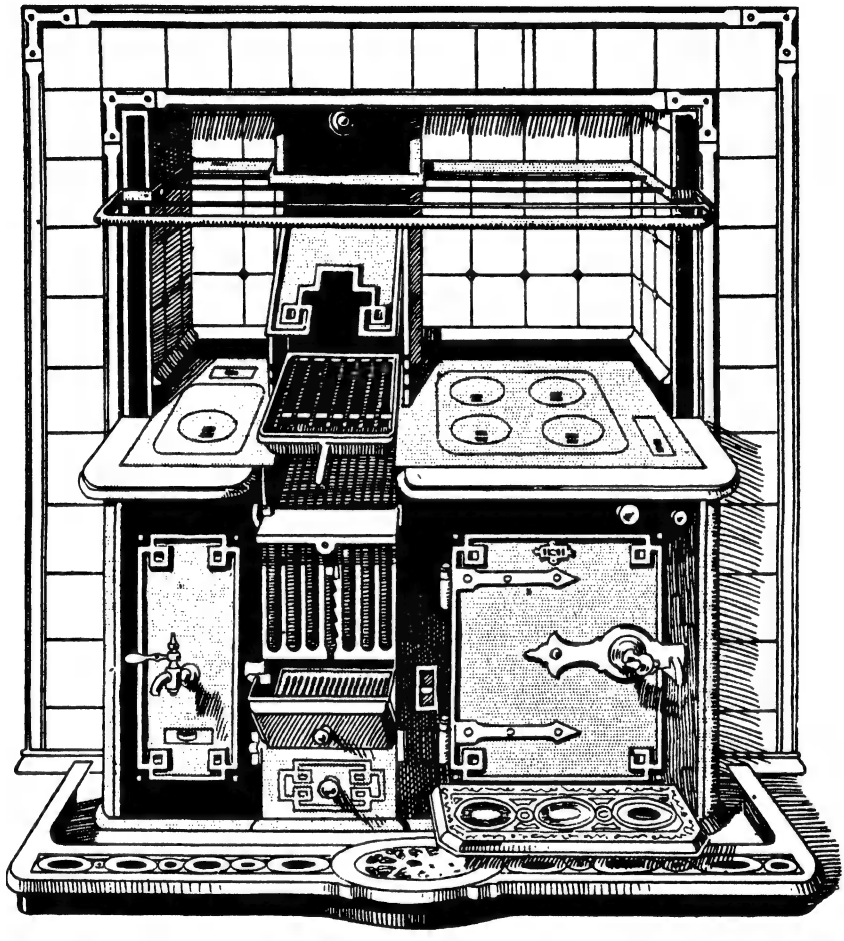


Fig. 210.—"Convertible" Kitchen Range. (By Eagle Range & Gas Stove Co., Ltd., Birmingham.)
The range is shown as adjusted for an open fire. The size of the fire can be decreased as desired. Plate-rack is fixed above, and a cinder-sifter is fitted under the fire.

is spoilt by unskilful setting, and whenever the workmen of the manufacturer are within reasonable distance, they should be employed. It may be well to emphasize the advantages of iron over brickwork flues. How

Fig. 211.—Patent Indicating Dampers. ("Eagle" Range.)

ever well set at starting the brickwork may be, it is liable to become disconnected from the range, causing the flues to leak into one another. When this happens, the dampers cannot fulfil their purpose, and the range must

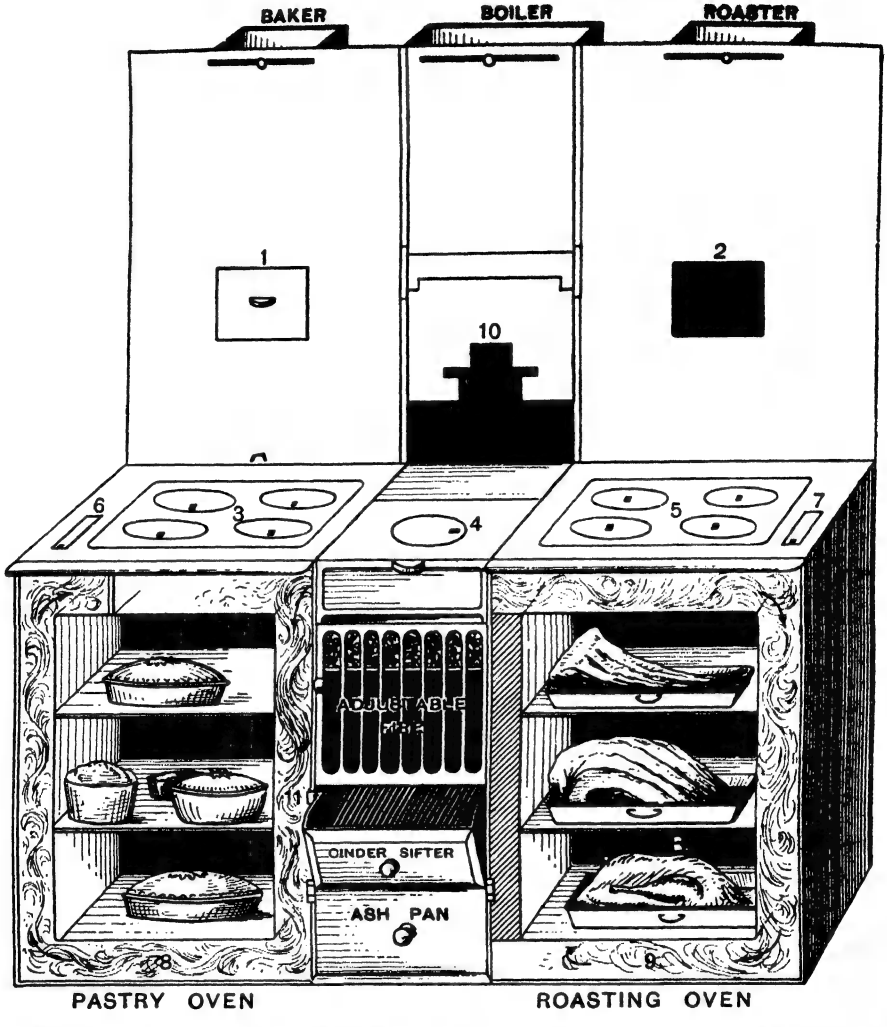


Fig. 212.—Diagram of Range. The oven fronts have been removed to show course of flues. 1, 2, Flue-cleaning doors (No. 2 removed, showing flue behind); 3, 4, 5, Hot-plate panels; 6, 7, 8, 9, 11, Cleaning-doors; 10, Open or closed fire.

In a double-oven range (as above), the flue of Pastry oven goes direct to the bottom of the oven, then up the side, and to the top. For heating the hot-plate (3) the flame can be drawn over top of oven when required. The flame then passes (at A) into an iron flue at the back of the range. The centre flue takes the smoke and flame of fire direct into chimney. The flame of right-hand side (Roasting oven) passes over top, down side, then across the bottom into iron flue at B.

To clean the flues remove the cleaning doors 1 and 2, panel-plates 3, 4, and 5, and cleaning-doors 6, 7, 8, 9, and 11. This exposes the whole of the flues, and most of them can be seen. First push the wire-handled flue-brush through the cleaning-door 1, up as far into the chimney as it will go. It should be well shaken about the flue to get all the soot out of the corners; then push the flue-brush down as far as it will go, and clean in a similar manner. The soot from this flue will fall just underneath the panel-plate 3. Open the centre fire flue, 10, brush up and down as explained; also the roaster flue through the cleaning-door 2. In the latter case the flue goes down at the back of the oven and the brush can be pushed down about two feet farther than in the Pastry oven flue. Next, lower the adjustable bottom grating so that the cinders fall out on the cinder-sifter; scrape out any accumulation of cinders and soot that have been drawn into the boiler flue, push the flue-brush in the flue, and also pass the flue-brush down the flue-hole at the back of the plate marked 10. It is as well for the person cleaning a boiler flue to pass a lighted match down this flue to *see* that it is *quite clear*. Now brush the soot off the top of each of the ovens down the side flues. Push the flue-brush down the side flues 6 and 7, and cleaning-door in front, 11; also well brush the bottom of the ovens through cleaning-doors 8 and 9, and clear out the soot. In addition to brushing, scrape the outside of the bottom of the ovens so as to get this part as clean as possible. The cleaner the flues are kept the less fuel is used and the ovens heat more readily.

be re-set. The reason is that iron, when heated, expands very much more than brick. It is therefore better, if possible, to have the flue made of the same material as the range.

Adjuncts of a Range.—The loose parts of a stove must be easily removable to facilitate cleaning. A plate-rack must be considered a necessity; a cinder-sifter that fits under the fire is useful, for not only does nothing but fine ash fall into the pan, but also the cinders are ready for use at any moment. An adjustment that allows of a diminution in the size of the fire has advantages obvious to all; and to be able to burn any kind of coal, large or small, and coke as well, is a further economy. When mixed with an equal quantity of cinders, coke makes a quick bright fire. Rubbish is best burnt by mixing with it some small coals and a few cinders; it should, of course, be dry before it is used as fuel.

It is necessary to add that neglect in the ventilation of the kitchen is especially injurious in the case of a close range, which demands a good supply of air to prevent stuffiness.

Portable Ranges.—Portable ranges, or "kitcheners", are much cheaper than fixed ranges, and although fitted with fewer patent improvements, are

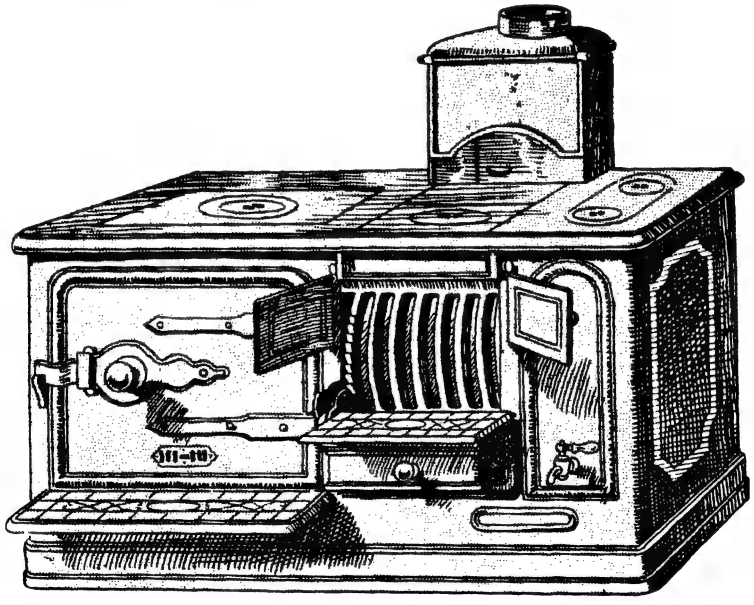


Fig. 213.—Portable Range or "Kitchener". (By Wilson Engineering Co., Ltd., London.)

admirable devices, whether placed in the chimney-breast or standing out into the room. It is well to remember that this sort of stove wants a flue-pipe to carry off the products of combustion. Inexperienced persons have been known to set the stove in the kitchen and expect it to work. A draught has to be created, and for this reason the chimney-opening is generally enclosed with a sheet of iron, with a hole in it for the pipe to pass

through; but easy as this sounds, it wants "brains along with the tools". *Many* of these stoves will burn any fuel, from the worst of coals to peat and wood.

STOVES.

Gas-stoves.—Gas-stoves are now universally used, and are highly appreciated for their convenience and economy, especially in summer. Those who feel doubtful about the latter, in respect of the gas consumed, may be assured that this is not great, unless the gas is extravagantly used. The main causes of waste are badly-planned meals, wrong utensils, the lighting of large burners where small ones would suffice, the neglect to transfer the vessel from a large to a small burner after boiling-point has been reached, and carelessness in leaving the gas on when it is no longer required.

If a boiling-burner has been lighted for cooking potatoes, and a second for a pudding, and the oven heated for a joint, it may be argued that there is not much amiss; yet with a little foresight the consumption might be reduced by cooking the potatoes in a steamer over the pudding, or, of course, by baking the potatoes, and so saving an extra boiling-burner. Then, supposing a stew of meat and vegetables is being baked for a few hours, a rice or other milk-pudding may be cooked at the same time, or fruit may be baked, or the morning's porridge partly prepared. When the oven is used all the burners must be lighted, therefore it is sheer waste to cook only one thing at a time. Moreover, many little dishes can be grilled. A thick slice of fish, a large steak, a tin of sausages, and a pigeon, are all suited admirably to this form of cooking.

Many persons who invest in stoves hesitate, from mistaken notions of economy, to purchase suitable utensils. They use instead heavy iron ones, forgetting that the cost of the gas wasted in bringing them to the boil would pay for new ones several times over. Too much gas is used, not only in the ways already indicated, but also by turning it on too high; when the flame is burning round the pans instead of underneath, the vessels are being prematurely worn out. Common sense and experience are the best remedies for all forms of waste, and those who make a study of the matter will be surprised to find how little gas is wanted to keep the contents of quite a large pan at simmering point.

A short description of the principal features of a modern family stove may be found useful. One may suppose it to be a cooker, with an oven, a griller, and three or four boiling-burners on the top (fig. 214). An enamel-lined oven is the best, for, apart from its heat-retaining properties, it can be washed as quickly as a dinner plate. The top should be fire-brick, as that material absorbs heat and adds to the efficiency of the oven. The fittings—the rests for the grills and shelves—should be movable. Unless they can be lifted right out, the oven is more difficult to clean. A good

griller (fig. 215) is a real boon. In the best kinds the heat can be directed downwards for grilling, or upwards for boiling. But while grilling is in progress there is plenty of heat that may be utilized in other ways.

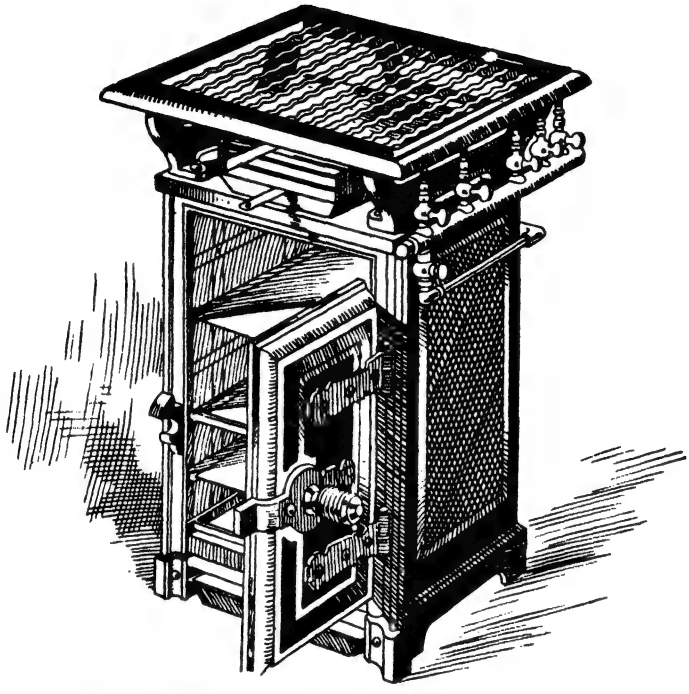
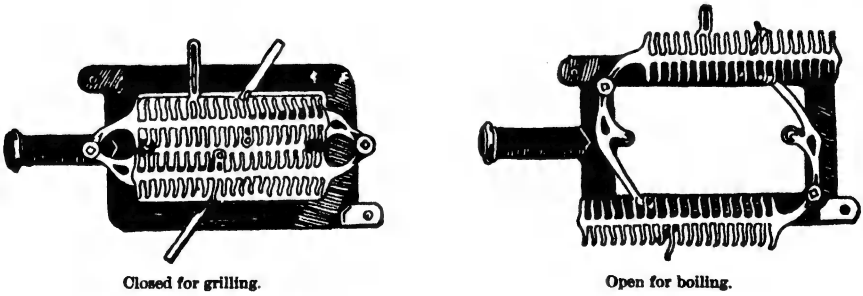


Fig. 214.—Gas Cooking Stove. (By Chas. Wilson & Sons, Leeds.)

The boiling-burners vary in shape. It is a common arrangement to have two or three round and one oval or oblong, but there should also be a



Closed for grilling. Open for boiling.

Fig. 215.—"Wilson" Patent Radiating Grate.

tiny burner not much bigger than a crown piece to keep things hot after they have been brought to the boil. A boiler may be fitted to the side of the stove, or for much less cost a portable one may be bought for the top; indeed, given good management, it is easy to avoid running short of hot water.

The hot-plate (fig. 216) consists of bars that can be easily removed for

cleaning. An "extended hot-plate" is a good feature, as it allows more room.

A stove catalogue of any of the leading makers will give much useful information, such as the results of competitive tests, the cost of cooking for

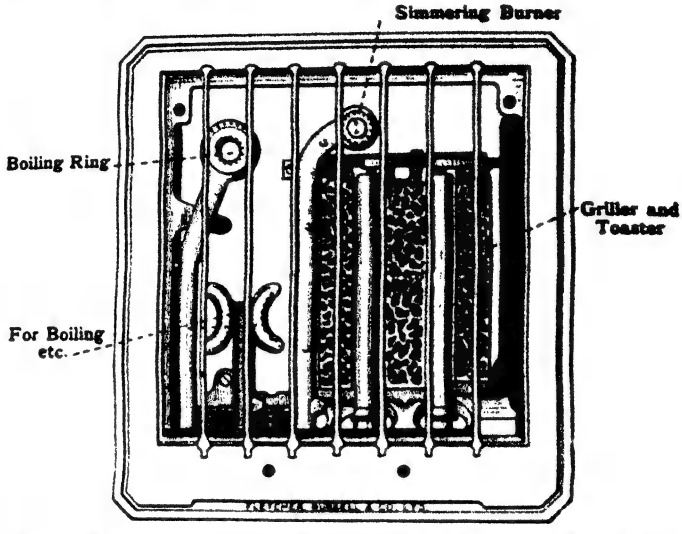


Fig. 216.—Hot-plate of Gas-stove. (By Fletcher Russell & Co., Ltd., Warrington.)

a family with gas at so much per thousand feet, and the saving that has been effected in many hospitals and other large institutions by substituting gas for coal cooking. Here the advantages may be summarized in a few words: they are given from tests with stoves of various makes. Firstly, economy: a purchaser must count not only the cost of stove and fuel, but also the saving in space and labour, the stove being ready at a moment's notice, wanting little attention, and being extinguishable as soon as it is no longer required. Secondly, cleanliness: there are no ashes and dust, no sooty flues or sauce-pans, no blackening of hands and dresses. Thirdly, the almost perfect uniformity of heat and its easy regulation. Fourthly, saving in food: joints lose less in weight in a gas than in a coal stove or than when roasted in front of a fire. Fifthly, convenience in summer, for in hot weather a fire not only makes a kitchen very uncomfortable, and therefore more difficult to work in, but actually adds to the work. The small breakfast cookers (fig. 217) and portable ring boiling-stoves (fig. 218) are useful, also the Appleton Quick Cooker, which bakes meat, pies, cakes, &c., over a gas ring and very quickly. It is

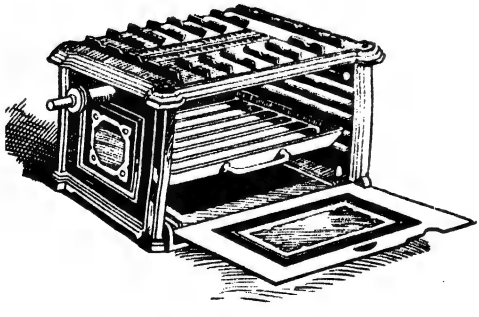


Fig. 217.—"Wilson" Breakfast Cooker.

seldom necessary to buy gas-stoves, for in most large towns they can be hired for a very small sum from the gas companies.

Oil-stoves.—Oil-stoves are very convenient where there are no facilities for gas, or where coals are costly, or for the preparation of emergency dishes. The past few years have seen many improvements, as those who have visited the leading cookery and other exhibitions must be aware. But there are good and bad, and it is well to know what are the leading features of the best and newest stoves. Sound construction is of primary importance; a very low-priced stove is never really cheap, and is sometimes unsafe. A stove for family use (fig. 219) should boil, stew, steam,

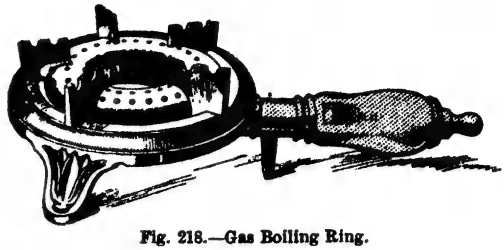


Fig. 218.—Gas Boiling Ring.

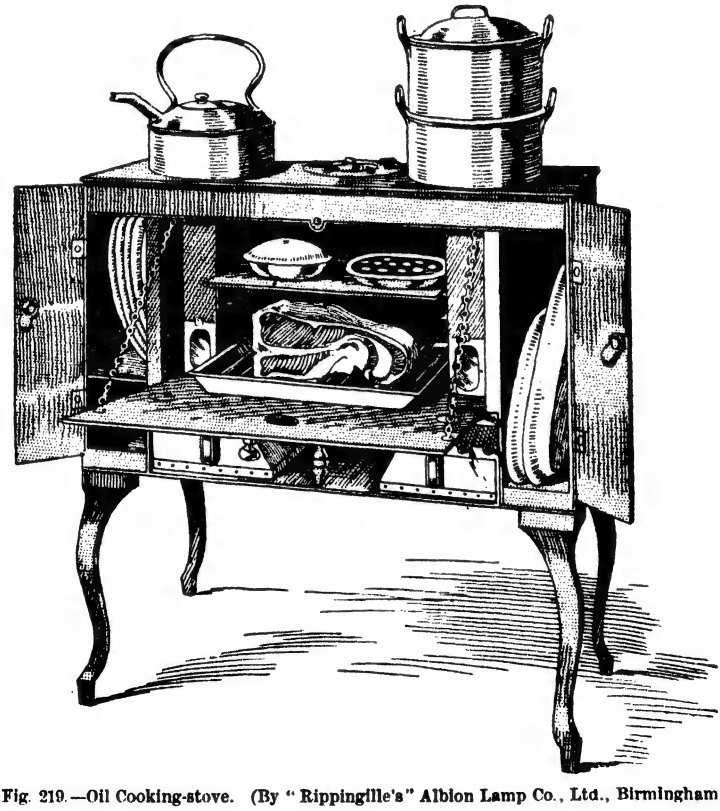


Fig. 219.—Oil Cooking-stove. (By "Rippingille's" Albion Lamp Co., Ltd., Birmingham.)

and fry on the top, and should have an oven with a good bottom heat, in which baking can be done. The best are enamelled like gas-stoves, and can be kept cleaner than the old kinds. Side boilers and plate-warmers are features of the large ones, and are worth the extra cost. The burners have been much improved, but even with the best, in order to prevent

smell, care is necessary in trimming wicks and wiping off any oil that may have been spilt. While the finest oil is unnecessary, low-priced oil is often dangerous. The flash-point should be as high as is considered safe for use in a lamp.

Before any particular stove is bought, it should be seen at work; and as the leading makers generally have agents in the larger towns, this is as a rule easy. It is also important that every purchaser should procure a copy of the printed instructions which most makers issue. Persons accustomed to gas-stoves soon grasp the principles, but those who have worked with old-fashioned open fireplaces or ranges will find a number of small points which need explanation.

The following rules apply to oil-stoves of every kind:—Wipe the outside before lighting: fill up daily with oil; keep the wicks even; dry new wicks before inserting them; see that no foreign substances get into the oil; keep the burners very clean—an occasional washing in hot soda water is good; when the stove is not in use keep the wicks turned down inside the burner. These are rules simple enough for a child to master.

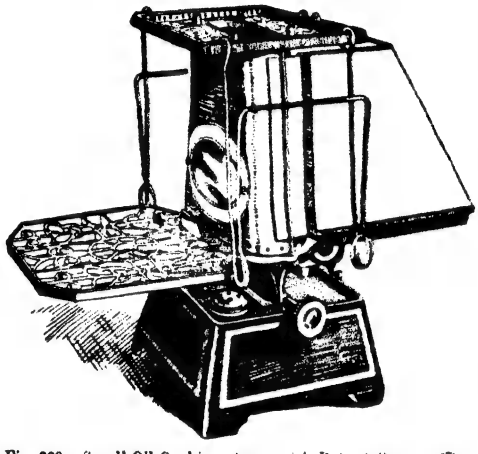
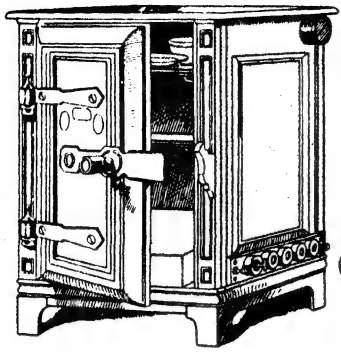


Fig. 220.—Small Oil Cooking-stove, with Patent Oven. (By Frank Rippingille Stove Co., Ltd., Birmingham.)

Mention should be made of the facilities now afforded for cooking by means of oil-stoves and lamps specially constructed to serve a double purpose. For example, a stove (fig. 220) that costs under a pound, and heats a small room safely and satisfactorily in the winter, may be turned to good account as a cooker in the summer for picnics, parties, and dwellers in house-boats, as well as for family use; for not only will it turn out a meal of several courses, but also, when fitted with a portable oven, it bakes bread very satisfactorily; a perfectly cooked fowl or little joint is also possible. There is too a particularly safe lamp, with facilities of the same kind, which consumes very little oil. Some such adjunct to the range or stove of daily life is worth consideration, if only for emergency dishes such as many concoct over spirit-lamps. The latter have their uses, but when it comes to anything like extensive cookery, and where economy has to be studied, the first cost of the oil cooker is soon saved by the difference in the cost of fuel.

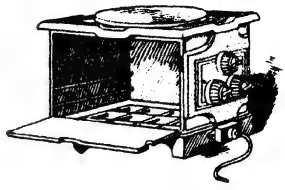
Electric Cooking Appliances.—Electricity will play an important part in the cookery of the future. New inventions have largely reduced the expenses, and its perfect cleanliness recommends it to all who can afford the high initial cost of the vessels. Among its many advantages for cooking may be mentioned the absolutely perfect regulation of the

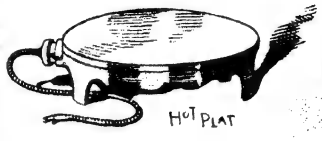
OVEN



The heat is regulated by turning on and off the switches shown on the right. When the required heat is reached several of the switches can be turned off, and the cooking done with less or no current, as little heat is lost by radiation. (See note* below)

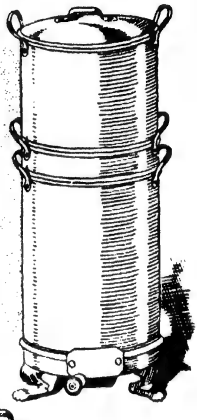
BREAKFAST COOKER

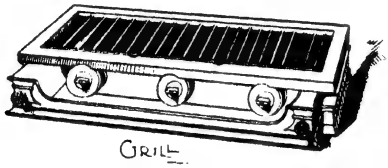




HOT PLATE

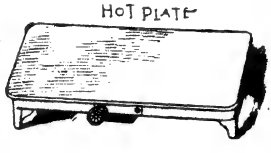
STEAM COOKER





GRILL

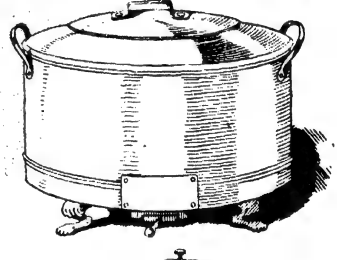
HOT PLATE



SAUCEPAN

STEW PAN

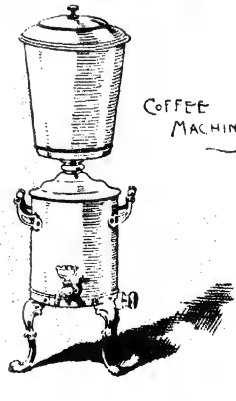
FISH KETTLE

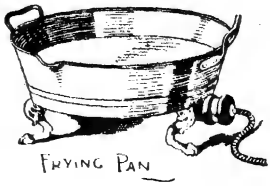


COPPER TEA-KETTLE

All the cooking utensils are made for various pressures, to suit the requirements of the different Electric Supply companies.

COFFEE MACHINE





FRYING PAN

* A temperature of 450° Fahr may be attained in 15 to 20 minutes with full power on, and this may be increased to 500° Fahr. if necessary. By manipulating the switches the heat may be localized or distributed throughout the oven at will.

heat, the long wear of the utensils, the freedom from smoke and soot, the coolness of the atmosphere, and much saving of time and labour.

The electric kitchen shown in fig. 221 is as unlike the old-time kitchen with its wasteful open fireplace as anything could possibly be. Here not merely the oven, boiler, and hot-plate are connected with the electric circuit, but even the kettles and frying-pans. That is to say, they can be connected—almost instantaneously—when they are required for use. Thus

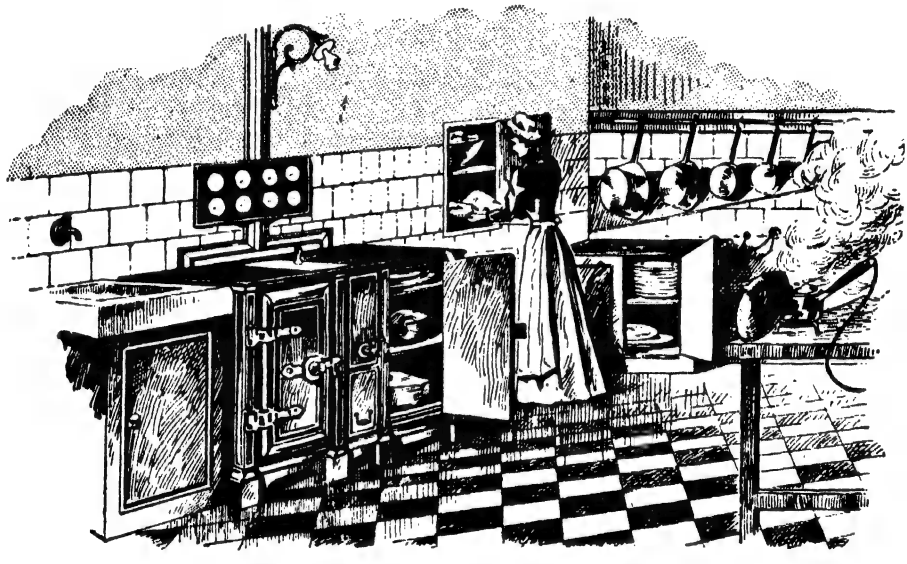


Fig. 221.—Kitchen fitted for Cooking by Electricity.

dishes for breakfast or supper, for the sick-room or other emergencies, can be prepared at a moment's notice, just as much heat being used as is necessary for the purpose, so there is no waste.

Apart from the question of cost, one fact stands out prominently—that dishes requiring very different degrees of heat can be turned out of an electrical oven, perfectly cooked, when once the manipulation of the switches is understood. No one dish need wait or suffer for another. As to the hot-plate, all who can appreciate the difference in flavour between cakes baked in the open, as on a griddle, and in an ordinary oven, will require no assurance of the merits of such an adjunct. In short, a general application of electricity to the cooking of the daily dishes would make house work pleasanter.

Whether gas or electricity be used as substitute for coal, the great point in favour of either is that it obviates the necessity for the coal-devouring kitchen range with its flues, smoke, dirt, soot, and the periodical necessity for the attendance of the sweep.

THE LARDER.

Condition of Larder.—Cleanliness is an essential condition of every well-ordered home, and if there is one department more than another in which it should be conspicuous it is in that which concerns the keeping and storage of food. Much of the succulence and flavour of butcher's-

Fig. 222.—The Larder.

The walls are tiled in white, and the floor may be cement or red tiles; upper shelf of wood, lower shelf of marble or light-coloured slate. A refrigerator is shown standing on the floor, and a meat-safe is fixed near the ceiling.

meat depends upon the length of time it is hung, but if it is kept in a moist, close, or warm atmosphere, its flavour does not mature, and it speedily becomes putrescent. The larder, therefore, should be cool, airy, and dry.

In order that it may possess the first of these conditions a sunny aspect should be avoided, and it should be a sufficient distance from the kitchen to be uninfluenced by the heat of the range. The window-frame should be fitted with wire-gauze instead of glass, and stone-work should be used

as much as possible in the internal fittings in place of wood. If, however, it is unavoidable that the sun's rays should strike upon the larder window for a few hours daily, their mischievous effects may be averted by pinning a wet cloth to the frame, taking care not to exclude the air. A pail of water set in the middle of the larder greatly assists in keeping the atmosphere cool. Inverted flower-pots placed in soup-plates filled with water, and covered with wet cloths sufficiently large to touch the water, form an admirable protection during very hot weather for such articles as butter and lard.

To keep the larder airy the ventilators should be so arranged that a current of air may be continually passing through it. This result may be obtained by having them at opposite ends of the room, one over the window and the other over the door, or by having the panels of the door as well as the window made of wire-gauze.

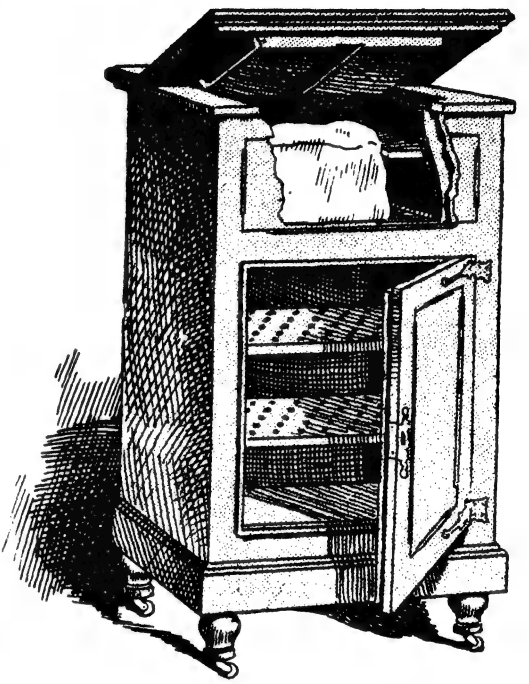


Fig. 223.—"Chandos" Refrigerator.

In order to keep the larder dry, especially when it is situated in the basement, the floor should be of concrete or asphalt. A dry day should be chosen for scrubbing it, and plenty of time allowed for drying. The shelves, as a rule, should be covered with paper; old newspapers will do very well for the purpose.

Fittings of Larder.—A plentiful supply of strong iron hooks should be firmly fixed into the ceiling, from which joints, hams, poultry, and game can be suspended. A number of earthenware jars should also form part of the outfit, each being labelled with the name of its contents. A good supply of wire meat-covers should be provided as a protection against flies. Another device which answers the same purpose is a cane or wire framework covered with muslin. Glass bottles and canisters are useful where the larder has to serve as a store-room for groceries. If possible the larder should also contain an ice-chest or refrigerator (fig. 223). It keeps butter, milk, and jellies delightfully cool in hot weather, and thus, by diminishing waste, saves its own cost in a very short time. A moderate-sized one, sufficient for the requirements of a small family, can be bought for about £5. Weights and scales are indispensable.

HOW TO CHOOSE FOOD.

The purpose of the larder is the preservation of perishable articles of food in the most perfect condition for the table. But it is, first of all, essential that these articles should be of good quality. Hence all housekeepers should know how to market well—how to select good food at a seasonable time and a reasonable price.

Milk.—Milk is one of the most valuable articles of diet we possess, containing within itself in proper proportion all the elements necessary to the sustenance and nourishment of the human body. But it has this drawback, that it is a food which rapidly decomposes, besides being extremely liable to contamination if exposed to impure atmospheric influences. Many epidemics of typhoid fever, scarlet fever, and diphtheria have been traced to the use of milk purchased from an insanitary dairy or farm. The utmost care should therefore be exercised in order to obtain pure milk. Fortunately, in the neighbourhood of large cities there are many dairy-farms conducted on scientific principles and under constant skilled supervision, which supply the public direct by means of their own carts. The smaller farms and milk-shops are the chief offenders against hygienic laws, and it is from them that danger is most to be feared.

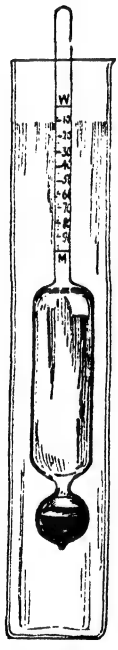


Fig. 224. Lactometer.

The specific gravity of unadulterated milk is about 1·030. If the milk furnished by any dealer is persistently below 1·030, the customer has good ground for complaint. The real value of any sample of milk can be easily tested by means of a little instrument called a lactometer (fig. 224), which can be purchased for two shillings or half-a-crown. All that one has to do is to float it in a jug of milk; the figure on its scale which is level with the surface shows the percentage of pure milk.

During an epidemic, or whenever there is any reason to suspect contamination, the milk should be boiled, or "sterilized" by the following simple process:—Place it in a clean bottle, and plug the mouth with clean cotton-wool. Then stand the bottle up to its neck in water in an ordinary kettle or saucepan on blocks to raise it about half an inch from the bottom. Heat slowly until the temperature of the water just reaches boiling-point. Take the kettle from the fire, and cover it loosely with a piece of woollen cloth for half an hour, after which remove the bottle and store it in a cool place, taking care not to remove the plug of cotton-wool until the milk is required for use.

Preparations of various kinds are used for the preservation of milk in hot weather, but they are not to be recommended, especially where there are young children, as even when they are otherwise harmless, their tendency is to retard the process of digestion and cause heart-burn. The ice-chest is by far the best resource at such times. No article of strong odour, such

as cheese, should be in the same compartment as milk, as the absorbing powers of the latter are great, and its delicate flavour is spoiled by too close proximity to foods of a pronounced aroma.

The advantages claimed for condensed milk are its uniform quality, its freedom from germs of disease, its convenience, and its keeping properties. All this may be true enough, but where a good supply of fresh milk is obtainable, it should be used in preference. (See also "The Dairy".)

Butter.—Butter should always be sampled before purchase, as the slightest suspicion of rankness is, to most persons, extremely disagreeable. It must be remembered, also, that this is accentuated by subjection to heat, so that pastry made with tainted butter is as unpalatable as it is unwholesome. Butter that is too salt has little globules of salt visible on its surface. They may be removed by washing it several times in cold water and afterwards pressing it in a cloth to remove the superfluous moisture.

Butter that is tainted can be improved in flavour in the following manner. Melt in a perfectly clean sauce-pan, and after removing the scum which rises to the top, let it stand by the side of the fire until all impurities have sunk to the bottom. Then strain it carefully through a sieve, leaving the sediment at the bottom of the sauce-pan, and stand it in a cool place to solidify. In hot weather keep butter in the ice-chest, or under an inverted flower-pot, covered with a wet cloth.

Eggs.—Eggs should weigh from an ounce and a half to two ounces each. Though they are used in enormous quantities in this country, there can be no question that they would be eaten still more largely if their freshness could always be depended on. Various tests are employed to ascertain their condition. One of these is the brine test. Dissolve two ounces of salt in a pint of water; a good egg, when placed in it, will sink at once to the bottom, while a bad or doubtful egg will float. Another test is to apply the tongue to the shell at the large end, which will feel warm if the egg is fresh. Another is to hold the egg up to the light. If fairly clear, it is good; if opaque or containing a black spot, it is unfit for use. An instrument made on this principle is illustrated in fig. 225. One may also judge of an egg by shaking it. When it is full and fresh no sound is emitted, but when it is stale the movement of the contents can be detected.

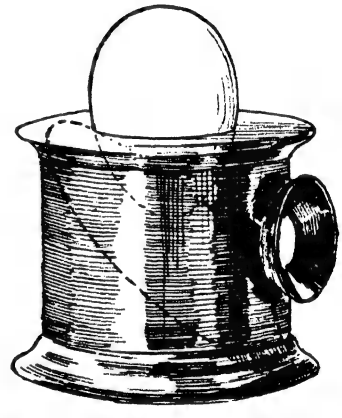


Fig. 225.—Egg-tester, as supplied by the Dairy Supply Co., London.

The instrument consists of a tin cylinder, with a lid pierced with a circular hole, in which the egg to be tested is placed. Beneath the egg is a mirror lying at an angle of 45°, and opposite to this is a small circular spy-hole with a suitable screen, but without a lens. The whole is held below a gas-jet or otherwise in a good light, and any opaque spot in the egg can be perfectly seen on the mirror, as the egg itself seems to concentrate the light.

Fish.—Fish as an article of food is not held in the high estimation it deserves. Owing to the quantity of phosphorus and nitrogen contained

in it, it forms a valuable diet for brain-workers, while its digestibility renders it specially suitable for invalids and persons of sedentary habits or occupations.

Fish may be divided, broadly, into three classes—white, oily, and shell fish. The first class includes whiting, soles, turbot, brill, plaice, flounders, haddock, and cod, in the order of digestibility.

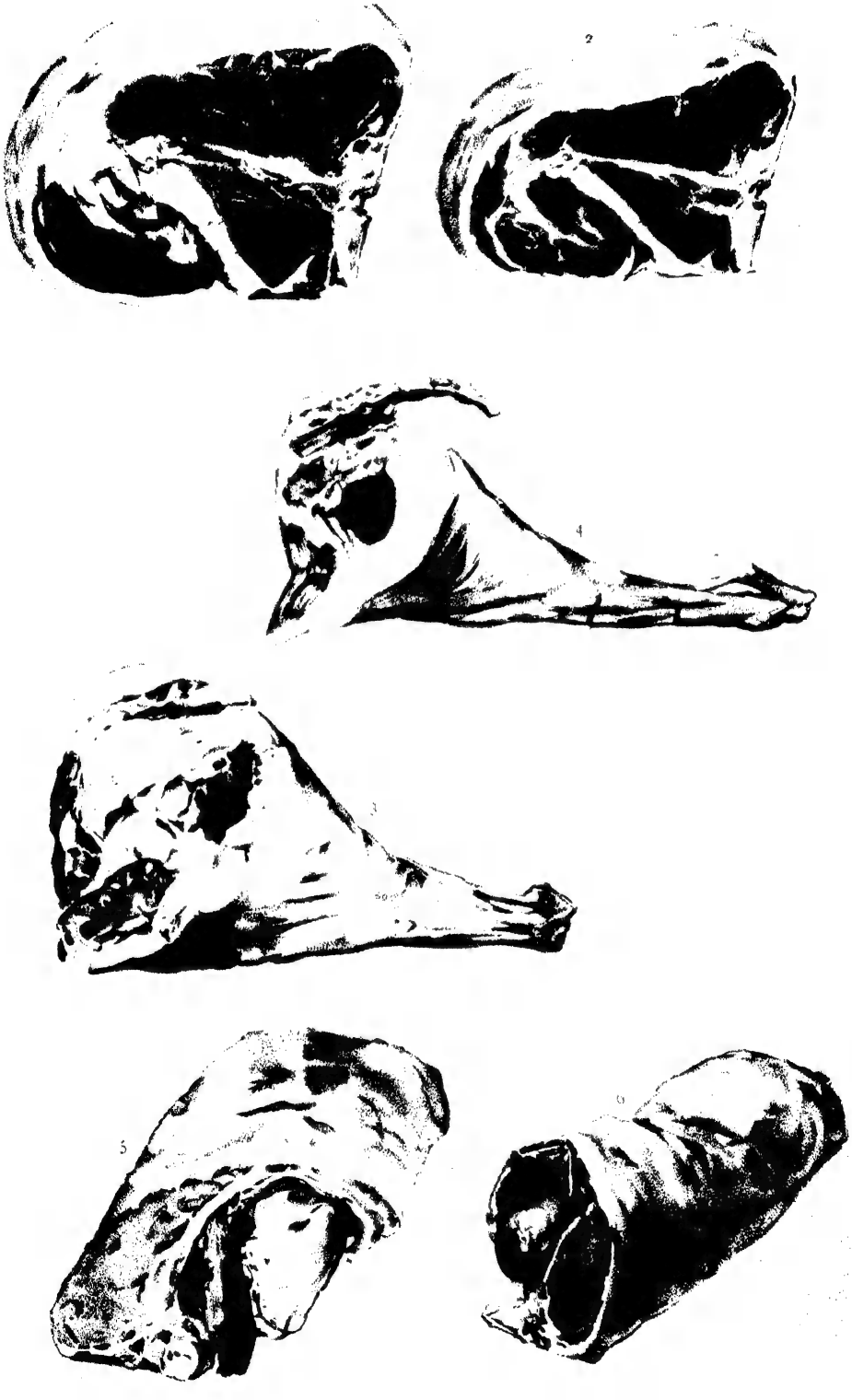
In the oily class of fish are salmon, mackerel, eels, and herrings. These are highly nutritious when they can be digested easily, but with many people they disagree. Mackerel decompose very rapidly, and should never be eaten unless they are absolutely fresh.

There are two classes of shell-fish, the crustacean and the mollusc. Familiar examples of the former are the crab, lobster, shrimp, prawn, crayfish, and crawfish; while the latter is represented by the oyster, mussel, cockle, scallop, and other fish enclosed between two shells. Periwinkles, whelks, and limpets are frequently, but erroneously, classed as shell-fish. Much has been written and said for and against shell-fish as food, but the truth of the matter is that they agree with some people and disagree with others, exemplifying the truth of the old proverb that "what is one man's meat is another man's poison". Oysters are frequently ordered by physicians when it is desirable to unite great nourishment with easy digestion, the amount of gluten they contain giving them this valuable quality. Care, of course, should be taken to eat shell-fish only when in season. Ill effects of a serious and even fatal nature often follow neglect of this precaution.

In choosing fish the purchaser should be guided by the following rules:—Bright eyes, red gills, flesh firm to the touch, and scales not easily rubbed off, are sure signs of freshness. A short fish, thick about the shoulders, is much to be preferred to a long thin one. The best cod are those that are plump and round at the tail, the sides having a slightly ribbed appearance, with yellow spots on a clear skin. When salmon are perfectly fresh there will be found between the flakes a creamy-white curd. Although highly prized by the epicure, this curd is somewhat indigestible, and the salmon should therefore be kept until the curd solidifies, which takes place in about twenty-four hours. The highly-esteemed smelt, when fresh, has an odour like a newly-cut cucumber, which passes away in about twelve hours after it has been caught. Turbot should be moist, the skin not blistered, and the colour of the light side very pale cream.

When choosing unboiled lobsters, press them between the eyes; if they are alive they will move their claws. To test boiled lobsters, take the tail between finger and thumb and draw it out from the body. If it springs back, the fish is fresh; if devoid of elasticity, it is stale. Lobsters and crabs should be chosen by weight, those of medium size having the best flavour. Oysters should have tightly-closed shells. "Native" oysters have small smooth shells, and are the best for eating raw; but large, rough-shelled oysters do very well for sauces, stews, and patties.

Beef.—Although beef is in season all the year round, it is at its best in winter, when it can be hung for several days to ensure its being tender.



The meat should be neither too red nor too pale, and the fat should be slightly tinged with yellow. Ox beef is considered the choicest, but heifer beef is the most economical for a small family. It has a closer grain, paler colour, and whiter fat than ox beef. Bull beef is dark-coloured, lean, coarse-grained, and strong-smelling. It should never be chosen, and is not kept by good butchers.

When a line of horny substance lies between the fat and the lean, or when a thick layer of gristle is under the fat, it shows that the animal was aged. Beef in prime condition should have little streaks of fat running through the lean, and the flesh should rise quickly when pressed with the finger.

Veal.—As veal rapidly decomposes and becomes tainted, it should be used quickly. It is at its best when the animal is about three months old. The signs of good veal are: pale-pink flesh of good colour, firm fat of a pinkish-white, and a small kidney. The flesh of the bull-calf is usually preferred for joints, on account of its being firmer in grain and fuller in flavour, but for many dishes that of the cow-calf is chosen because of its superior whiteness.

Although veal may be obtained all the year round, it is considered to be specially in season from May to September.

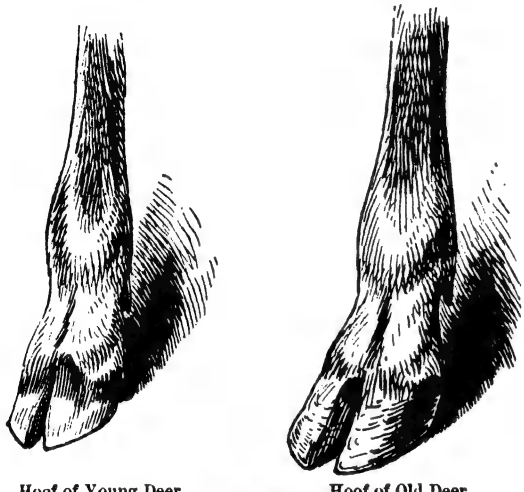
Mutton.—Mutton stands next in order to beef for its nutritious qualities, and as regards digestibility is superior to any other kind of butcher's-meat. A sheep should not be killed for food until it is at least three years old, and not more than six. Younger mutton is flabby and flavourless, and older is strong-tasted and stringy. The flesh of a five-year-old sheep is preferred by a connoisseur. At that age it should be firm, succulent, and juicy. Good mutton is finely grained, the lean of a darker colour than beef, and the fat white rather than yellow, the latter colour indicating poor quality. On an old animal the skin when pinched remains wrinkled. The flavour and colour of the flesh are affected to a considerable degree by the herbage and other food of the sheep. Scotch and Welsh mountain mutton are darker than Lowland mutton, and have a slightly gamy flavour. South-down mutton is much prized on account of the delicacy of its flavour. But the flesh of sheep reared on marshy ground near the sea-coast is usually considered to be the perfection of mutton, the saline particles with which their food is impregnated imparting both firmness and flavour. Wether mutton is the best, and should be chosen for roasting. Ewe mutton, which is cheaper, is quite good enough for boiling or stewing. Ram mutton should always be avoided. Mutton should be well hung before being cooked, the length of time depending upon the state of the weather and the quality of the meat. The leg will keep for a much longer time than the loin or the shoulder.

Lamb.—Unlike mutton, lamb will not keep long. The flesh should be firm, and of a light colour; the fat should also be firm and light. Avoid lamb which has yellow fat and flabby red flesh. Lamb which is born in the winter time, brought up under shelter, and fed principally

upon milk, is considered the best, but is rather an expensive luxury for people of limited means. Grass lamb, *i.e.* lamb fed upon pasturage, comes into season about Easter.

The quality of lamb may be easily tested by the appearance of the vein of the neck, which should be of a ruddy or bluish colour; if green, it is not good.

Venison.—There are three kinds of deer indigenous to this country—red-deer, roebuck, and fallow-deer. The last is the commonest. Buck venison, considered the finest, is in season from June to the end of September, and doe venison from October to December.



Hoof of Young Deer. Hoof of Old Deer.

Fig. 226.

Venison should be hung from fourteen to twenty days in a dry larder, and well wiped with a dry cloth each day. Powdered ginger and pepper should be dusted over it to keep off flies. In order to ascertain its condition, run a skewer close to the bone, and judge from the smell whether it is sweet or not. If musty, it should be washed first in lukewarm water, and afterwards in tepid milk and water, and then dried very thoroughly. The lean should be fine-grained and dark; the fat plentiful, firm, white, and clear. The age may be told by the cleft of the hoof—if smooth and small, the animal is young; if rough and large, it is old (fig. 226).

Pork.—The pig is particularly liable to disease, and if its flesh is in a diseased condition when eaten, evil results are sure to follow. For this reason pork should be chosen with the greatest care, and only during the winter months. The fat should be white and firm, the lean finely grained, and the rind thin and smooth. Pork from which the rind has been already pared should not be bought, as this always indicates a heavy, coarsely-fed animal. Discolorations in the fat prove an unhealthy condition at the time of killing. Pork that has been dairy-fed is the best. In order to avoid inferior qualities, it should always be purchased from a dealer of standing and reputation.

Game.—The principal kinds of game, besides venison, are pheasants, partridges, grouse, snipe, woodcock, and hares.

Pheasants and partridges should be hung for some days before cooking, the time depending on individual taste, as what is offensive to some is delicious to others. An old bird may be known by the length of its spurs, which in young birds are short and blunt (fig. 227)

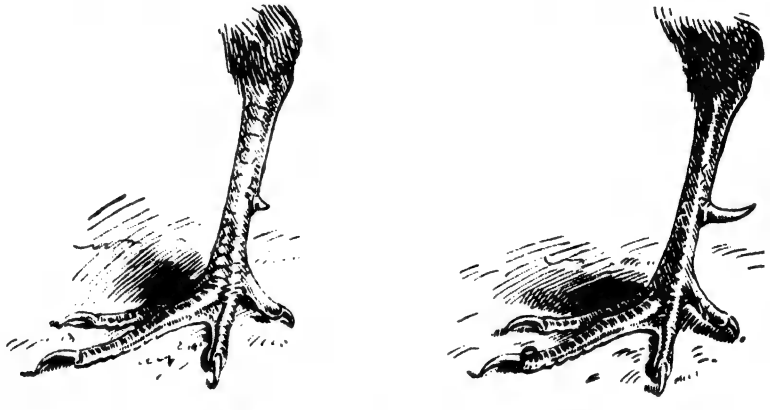
Grouse should be hung as long as possible, or their peculiar flavour will be lost. The beak will break if a young bird is held up by it.

GAME BIRDS

Snipe, when old, have thick, hard feet; when the feet are soft and tender the birds are young. Woodcock should be fat, and should never be drawn, as the trail is considered a great delicacy.

Hares are in season from September to April. In a young hare the claws are smooth and sharp, and the cleft in the lip is not much spread. A hare should hang for at least a week—longer if the weather permits.

Poultry.—The weight of fowls and chickens should be great in proportion to their size, but an over-fat bird is not economical. A young



Young Pheasant's Leg. Mature Pheasant's Leg.

Fig. 227.

fowl can be recognized by its feet. The claws should bend backwards without cracking, and there should be no spur upon the legs. The spur does not begin to grow until the bird is a year old. The skin should be soft and silky, and the breast full and plump.

Ducks should have a full breast, supple feet, and a clear skin. Geese should be eaten when young. The breast should be plump, the skin white, and the feet yellow and pliable. Red feet and bill denote an old bird. A good test is to squeeze the windpipe close to the body. If it yield easily to the pressure, the goose is tender; if it resist, it is tough.

When purchasing a turkey choose one of moderate size. In young birds the skin is soft and even; in old ones it is coarse and wrinkled. The legs should be smooth; a long spur with rough pale legs denotes age. Hen turkeys are considered the best, especially for boiling.

BRITISH AND FOREIGN MEAT COMPARED.

The insufficiency of home produce for home consumption, which is manifested on a larger scale in the United Kingdom than perhaps in any other country, has given rise to an enormous and useful development of the importation of fresh meat from Australia, New Zealand, South America, the United States, and Canada. The principal method by which it is

preserved during the long period of transit is refrigeration. Every one knows how much more rapidly meat, fish, and poultry become tainted in hot weather than in cold. So much is this the case that in tropical countries it is generally difficult to keep meat long enough to get rid of the toughening rigidity which pervades muscular fibre after death, and takes in our climate one or two days to subside. Hence a cool larder makes a very great difference in the time for which provisions may be kept. By means of refrigerators on trans-oceanic steamships the temperature of the storage compartments may be kept down to a point below freezing, even during the hot passage through the Indian Ocean and the Red Sea. It may be well to remark that, according to the most reliable authorities, a uniform temperature several degrees above freezing point, say 38° Fahr., is sufficiently cold to prevent decomposition.

The prejudice against frozen meat has disappeared, except among the very ignorant, and its low price enables thousands of families to have a good meat dinner daily, when otherwise beef or mutton would but rarely appear upon their tables. It would be absurd, however, to compare foreign meat, as regards quality and flavour, with home-bred and home-fed meat. Apart from the coarser, ranker herbage of foreign ranches and sheep-farms, there can be no doubt that the process of freezing, by solidifying the natural juices of the animal, exercises a deteriorating influence upon the constituents of the meat which no after-treatment can remedy entirely.

Foreign meat should be carefully and slowly thawed by immersion in cold water and then wiped dry, and hung up in the larder with the cut end uppermost in order to preserve the juices, which would otherwise run out. In cooking, the pores should be closed by the application of great heat for a few minutes, and the joint should then be cooked very slowly.

PRESERVED PROVISIONS.

The boon that preserved foods have been to the British housewife has rarely been properly realized by her. It is difficult even to imagine what we should do without the fish, entrées, vegetables, and fruit, put up in tins or bottles, that now form part of our regular household supplies. There are many among us who think that nothing good can come out of a tin; but so scientifically complete is the process of preserving that the risk of ptomaine poisoning is infinitesimally slight, especially if such precautions are taken as emptying the contents of the tins immediately the latter are opened. Contact with the air while the fish or meat or poultry is in the tin is to be avoided. For this reason, sardines should be turned out into one of the little china or crockery receptacles sold for that purpose. Many of the reported cases of poisoning have been caused by neglecting this precaution. With salmon, particularly, it should be

the rule to turn out the whole of the contents of the tin directly it is opened. Oysters keep very well in tins, but they too should be immediately turned out. They are useful in cookery, but are scarcely suitable for eating raw, as much of the original flavour disappears in the process of tinning. Rozans à la bordelaise and Thon à la bordelaise are some of the most delicious forms of tinned fish. To be strictly accurate, they are put up in glass, but have a metal cover. Lazenby's dry lobster is very good. Tongues are among the most useful of preserved provisions. Many American firms supply these, but our own English houses should be preferred by those who like British money to be spent in Britain. Chicken, whether preserved whole, in curries, or as a galantine in combination with other meats, is another useful variety. Vegetables, such as artichoke bottoms, asparagus, green peas, haricots, mushrooms, &c., are all to be had in bottles or tins. With green vegetables sulphate of copper is sometimes used to preserve the colour. All grocers and provision dealers are obliged by law to attach a label to such vegetables, announcing the presence of sulphate of copper. All that is necessary to expel it and render the vegetable harmless is to turn the latter out in a colander, carefully drain away the liquor, and pour warm water, then cold water, over the vegetables. Macédoine of vegetables, whether tinned or in bottle, is so useful that no store closet should ever be without it.

Bottled fruits are among the most valuable of preserved provisions, because they provide us with an article of diet that helps to keep us in good health, and this at a time when fruit is extremely dear. It is a good plan to lay in a store of bottled fruits at the beginning of every winter, so as to secure variety throughout its course. Among the most excellent are peaches, apricots, Victoria plums (often called egg plums), green plums, pears, cherries (better when not stoned), strawberries, raspberries, currants, gooseberries, all preserved whole. The price list of such firms as Poulton & Noel or Lazenby give a quantity of information on the subject of preserved meats; while that of any well-known fruit-growing company is equally instructive. Never accept any tins of which any part bulges outwards. This means that air has had access to the contents. An inward bulge means nothing worse than that the can has had a knock.

Fruits that are preserved in syrup are to be chosen in preference to those chemically put up. They are a little more expensive, but as they do not require so much sugar in the cooking, this initial cost is made up for in the end.

Another class of preserved provision includes potted meats or fish, sold in tins or jars, and covered with lard or butter, which completely excludes the air. For toasts there could be few things more tempting than sardines or anchovy paste, and a well-known ingredient of savouries is bloater paste. Soft roes of herring are very much used in the same way by clever cooks, and these delicious roes are used as garnish for many dishes.

Portable lemonade is one of the most useful forms of preserved provisions. Extracted from the juice of fresh lemons, and concentrated in the form of dry crystals, it is put up in bottles, and is much appreciated by travellers on the Continent, who find it difficult to please themselves with the beverages of the various countries. Yet another branch is to be found in the excellent pudding and custard powders, egg powders, and table jellies, with which every notable housewife takes care to provide herself.

Bottled soups, sauces savoury and sweet, are too well known to need specifying. Soups in powder are also among the most generally useful articles that could be found in the store closet. These are of various kinds, beginning with the well-known desiccated and running the range of mulligatawny, ox-tail, rice, &c. &c. The mode of preparation for table is extremely simple.

PRESERVING FOOD BY ANTISEPTICS.

Salting Meat.—Another method of preserving food, which may be said to be in universal use, is by means of antiseptics, of which salt is the most ancient and the most common. Salt appears to act on the principle of abstraction. When packed with meat in casks it draws out enough of the albuminous juices to form a quantity of brine; or, if the meat is at once steeped in brine, the latter will, according to its strength, still attract to itself a part of the juices, as is proved by the fact that when the resulting fluid is boiled, a quantity of coagulated albuminous froth rises to the surface. When meat is pickled at home, it is usual, in order to keep down as much as possible the abstraction of nutritious matter, to allow about twice as much water in the brine as would suffice to dissolve the salt.

The following are the proper proportions of the ingredients in a pickling brine—7 lbs. of salt to 4 gallons (or 40 lbs.) of water, being a proportion of about 15 per cent of salt. To this add 4 ounces of refined saltpetre, which, besides preserving the red colour of the meat, greatly increases the strength of the brine, for it is reckoned to have about four times the antiseptic power of common salt. Finally, add 1 lb. of coarse brown sugar and 1 ounce of black pepper. Boil all together for twenty minutes, and skim well. Pour the brine into an earthen pan, and leave it until it is cold. It is then ready for use.

Meat for salting should be purchased when quite fresh, and the kernels, sinews, and pipes should be removed at once. If the weather is favourable it may then be hung for a day or two, but it must not be in the least tainted. The brine must penetrate thoroughly into every part of the meat, and in order to ensure this, all little holes, crevices, and corners must be filled with salt. The meat must be frequently examined, and any parts that show signs of mouldiness should be cut off.

The time for keeping meat in brine must be determined by the degree

of saltness required, and the size and kind of joint to be treated. Beef absorbs salt more quickly than pork, and a week or ten days will probably be found a sufficient time for an ordinary-sized piece, whereas pork may be left in the pickling tub twice or three times as long, and still not be too salt. It should be remembered that as beef is rendered less digestible and nourishing by pickling it should not be over-salted. Pork, on the other hand, is made more digestible, and many who have to abstain from fresh pork can eat it when pickled or cured.

Salt meat forms an agreeable change, and is convenient when fresh provisions cannot be obtained, but when used continually for any length of time it is apt to give rise to various disorders of the blood and skin. As the juices extracted contain, besides the albumen, the greater part of its flavouring and stimulating principles, one cannot be surprised at the detriment to health, culminating in scurvy, which results from a long-continued diet of "salt junk".

Smoke-cured Provisions.—Smoke is another antiseptic which has been used for ages in the preservation of food, sometimes as a supplement to salting, and at other times alone. Creosote is the active principle which gives to wood-smoke its antiseptic properties. Familiar articles of food which are frequently sold after being smoke-cured are "Finnan" and other haddocks, salmon, hams, sausages, herrings, and ox tongues. As smoking is a tedious process which cannot very well be carried out within the confines of a small establishment, there is no need in a work of this description to enter into details regarding it.

Notwithstanding the disadvantages of salting and smoking—the former process tending to abstract useful juices, and the latter to indurate and render indigestible—the cheapness and convenience of provisions thus treated secure for them a high place in popular favour.

Marinading is another and a very excellent, though less-known manner of preserving fish or meat. It is not difficult. The marinade is composed of equal parts of vinegar, wine, and water, onions stuck all over with cloves, bay leaves, slices of lemon, thyme, ginger, sweet basil, parsley, and whole peppers. These are all boiled together, and are then poured over the meat, which should first be rubbed over with salt and placed in a dish just large enough to take it. The marinade should completely cover it. Every day the marinade must be boiled up and poured again over the meat, which should be turned in the dish each time. After four or five days, if the weather be hot, and a longer time in winter, cover the bottom of a stewpan with slices of bacon and pour a little of the marinade on these. Then lift out the meat and put it in the stewpan. Cover it with more slices of bacon and add a little of the marinade. Keep it covered by adding marinade, to which some French cooks add sour milk. It should simmer slowly till the meat is tender. A round of beef can be marinaded in this way, or the brisket can also be done, but should be boned and pressed.

Freshwater fish are excellent when marinaded in the above way for

two or three days, then baked in the oven or boiled in half water, half marinade. For the sauce mix a tablespoonful of flour with some sour milk, add some of the marinade, a bit of butter, and some chopped anchovies. Cook this sauce, not allowing it to boil, strain it and serve it in a sauce boat.

Caper sauce is usually served with marinaded meat. If plenty of salt is used before putting the beef in marinade, and if it be turned every day, the marinade reboiled and poured over it twice a day, the beef will keep good for a fortnight, and is always a favourite sideboard dish.

RELATIVE ECONOMY OF DIFFERENT JOINTS AND FOODS.

To many people the word "economy" conveys an unpleasant idea of parsimonious living, pinching and scraping, though in reality it is but a synonym for good management. All really good cookery is based upon the knowledge of what to save, and the way in which that knowledge is utilized in preparing good and wholesome food. Some housewives think they are very economical if they restrict the family dinner to a single course of roast beef or boiled mutton, with nothing before or after it; but if they were to take the slight extra trouble of providing a good nourishing soup to precede the meat, and a pudding or sweet of some sort to follow it, they would greatly increase the comfort, enjoyment, and health of themselves and their families. No extra expenditure of money is necessary, because less meat is required. Nothing is so extravagant as to dine entirely off meat, and nothing is worse for the digestion. Soup wakes the stomach up to its work, and, as it is quickly absorbed, is a form of nourishment particularly suitable for people fatigued with work or exercise. Digestion is a physical as well as a chemical process, and requires a certain amount of vigour for its performance. For this reason solid food, if taken into the stomach of an exhausted person, frequently causes indigestion.

The popular idea that meat every day is absolutely essential causes much unnecessary expenditure by persons who can ill afford it. That meat every day is a superfluous part of a health-giving dietary is the teaching both of science and of experience. In the late Sir Henry Thompson's *Food and Feeding*, he says: "There is no doubt that the obvious and admitted value of a highly-nitrogenized food, of which meat is a concentrated form, to the labouring man has occasioned the almost universal belief that meat is the most desirable staple for all. 'If you wish to be strong, eat plenty of meat.' 'If you are feeling weak, eat more meat, and at every meal.' Such are the well-known articles of a creed which is deeply graven in the popular mind. Nevertheless, few statements relating to diet can be more misleading, and this is one which gives rise to much serious ill-health. . . . The one idea which the working-class possess in relation to improvement in

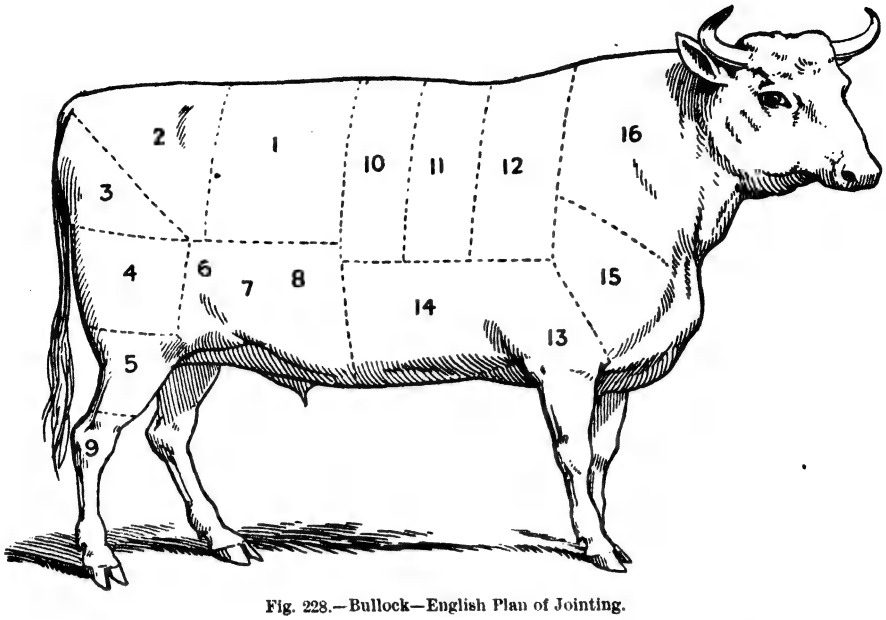


Fig. 228.—Bullock—English Plan of Jointing.

1. Sirloin.
2. Rump.
3. Aitchbone.
4. Buttock.
5. Mouse buttock.
6. Veiny parts.
7. Thick flank.
8. Thin flank.
9. Leg.
10. Fore ribs.
11. Middle ribs.
12. Chuck ribs.
13. Leg-of-mutton piece.
14. Brisket.
15. Clod.
16. Sticking-piece.

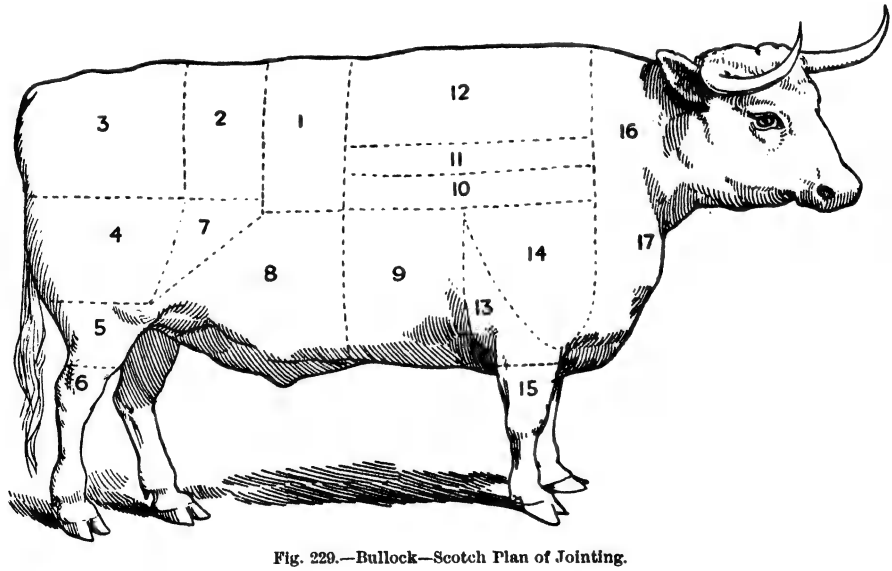


Fig. 229.—Bullock—Scotch Plan of Jointing.

1. Fore ribs.
2. Sirloin.
3. Rump.
4. The round (aitchbone and buttock).
5. The mouse and part of leg (shin).
6. The leg.
7. Thick flank.
8. Thin flank.
9. Nine holes (used for stewing).
10. Runners.
11. First runner.
12. Spare ribs.
13. Shoulder or mutton-piece.
14. Brisket.
15. Hough or shin (leg).
16. Neck and head.
17. Clod or sticking-piece.

diet, and which they invariably realize when wages are high, is an abundant supply of butcher's-meat. To make this the chief element of at least three meals a day, and to despise bread and vegetables, is for them no less a sign of taste than a declaration of belief in the perfection of such food for the purpose of nutrition."

If people only knew and considered the simple fact that flesh-forming material exists in numbers of things besides butcher's-meat, they would not cling to the erroneous belief that they will starve and perish if they do not have animal food every day. Milk, eggs, cheese, oatmeal, macaroni, lentils, and whole-meal bread are extremely rich in flesh-forming properties, and may well be used as occasional substitutes for meat. Lean beef contains, roughly speaking, about twice as much flesh-forming material as wheat, but as beef costs about four times as much as flour, it is twice as expensive.

Economy is shown not only in the arrangement and preparation for table of the most nourishing and appetizing dishes at a minimum of cost, but also in the selection of the proper materials from which to make them. Especially in the case of butcher's-meat is it necessary to have some knowledge of the different joints. Some that are low in price may be far from profitable in use, and others that cost double the amount may be the most truly economical.

Beef: Best Joints.—In the case of beef, the parts that are most tender and succulent are those in which the muscles are least called into action, as, for instance, along the back, from the rump to the hinder part of the shoulder, while the limbs and neck are the driest and least esteemed. The sirloin is of all parts the most delicate, and is the primest joint for roasting. There is a legend that the name is derived from the fact that the "Merry Monarch" facetiously knighted a loin of beef which particularly pleased the royal palate.

"Our Second Charles, of fame facete,
On loin of beef did dine;
He laid his sword upon the meat,
'Arise, thou good Sir Loin!'"

One would like to believe the quaint tale, but, unfortunately for its credibility, the joint is described in early cookery books before the time of Charles II. as "surloin", and "s loin", that is super-loin—the part which lies over or upon the loin. This much-prized joint is, naturally, somewhat expensive, but when it can be afforded is undoubtedly worth its cost. The steaks cut from the fillet, or under-cut, are very tender, but many epicures prefer steaks from the rump as being more full-flavoured. The cost of home-fed meat is from 10*d.* to 1*s.* 2*d.* per lb.

The rump is divided into silver-side, middle part, and chump end. The first of these is usually salted and boiled, the second is cut into steaks, and the third is roasted or braised. Rump steak is considered to be at its best in the winter months, and should be cut from meat that has been hung for three or four days. Being a prime part of the meat, and greatly esteemed

for its tenderness and delicate flavour, it cannot be called an economical cut. The chump steak, if of good quality, may be advantageously used for stewing, pies, &c. Cost of silver-side, 6*d.* to 8*d.*; middle part, 1*s.* 4*d.*; chump, 8*d.* to 10*d.* per lb.

The buttock or round, either in a fresh condition or salted, is considered by many the best and most economical joint of beef for boiling. It may also be stewed, or cut into steaks. The upper side, if well hung, makes a good and economical roasting joint. The cost is from 10*d.* to 1*s.* per lb.

The aitchbone is frequently salted and boiled, but, if previously well hung, it is excellent when roasted. Owing to the large proportion of bone, this joint will not commend itself to economical housewives, but its moderate cost—about 6*d.* or 7*d.* per lb.—must be taken into account.

Next to the sirloin the ribs are the part best adapted for roasting. Ribs of beef are more economical if boned and rolled; one rib rolled makes a nice little joint. The fore ribs are considered the choicest, and should be hung for three or four days before being cooked. The butcher should be instructed to saw off the thin end of the ribs, as otherwise this end will be overcooked before the thick part is done. The piece taken off may be cooked by itself, or kept for soup. The middle ribs also form a good economical roasting part, and from the chuck ribs second-quality steaks are cut. This latter joint is also excellent for boiling or braising; or it can be used for all kinds of made-dishes into which beef enters. The cost is from 10*d.* to 1*s.* per lb.

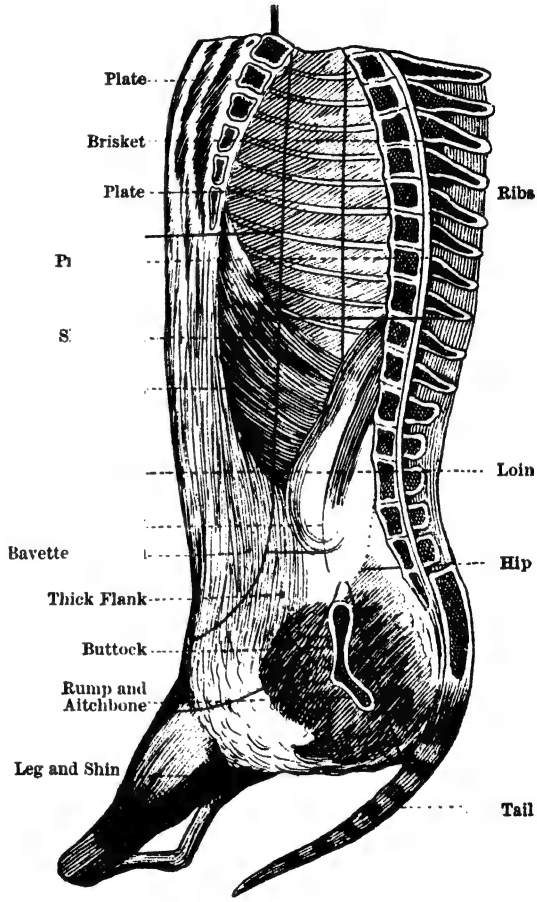


Fig. 230.—Section of Bullock or Ox.

Brisket of beef is usually salted and boiled. It is then boned and pressed, and forms a very convenient and acceptable dish for breakfast, lunch, or supper. The flank may be treated in the same way. Both joints are very suitable for stewing. The cost is about 7*d.* per lb.

The shin and leg of beef are very useful in the making of good soups

and sauces; the top part of the leg makes a very nutritious dish when braised, and the shin an economical stew. The cost is from 4*d.* to 8*d.* per lb. according to the part selected. The tongue, a dainty and delicious part of the ox, is usually salted and boiled. The heels are stewed for jelly, or used to give body and consistency to soups; the shoulder is boiled or stewed; and the other portions are used in soups and stews.

Lamb: Best Joints.—Lamb is usually cut up into quarters. The forequarter, consisting of the shoulder, the breast, and the neck, is inferior to the hindquarter. It should be used when fresh. The hind-

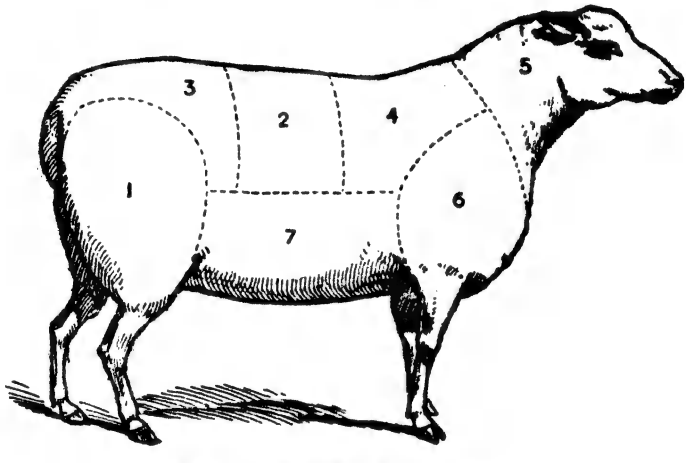


Fig. 231.—Sheep: English Plan of Jointing.

1. Leg. 2. Loin (best end). 3. Chump end of the Loin. 4. Neck (best end). 5. Scrag. 6. Shoulder. 7. Breast.

quarter consists of the leg and the loin, and is the better for being kept a few days. The shoulder is highly esteemed for its flavour, but the leg is the most economical joint for family use. The loin is generally roasted when not cut up into chops, and the other portions can be served in a great variety of dainty ways, the head and sweet-breads being specially esteemed. Price, 10*d.* to 1*s.* 2*d.* per lb.

Mutton: Best Joints.—The principal joints into which the sheep is cut for the market are: The hind-quarter, the leg, the loin, the saddle (which consists of the two loins cut in one), the fore-quarter, the shoulder, the neck, the scrag (which is the upper end of the neck), the breast, and the head.

A leg of mutton is an economical joint for a large family. Besides roasting and boiling, there are various other modes of preparing it for table. About 8 lbs. in weight is the best size, and a plump leg should be chosen, with a short bone. Cost, 10*d.* or 11*d.* per lb.

The saddle of mutton is rather an expensive joint, and is therefore seldom ordered by people of moderate means. It is considered the most tender and delicate part of the sheep. If hung in a cool, airy larder a saddle will keep from one to four weeks according to the weather. Cost, about 11*d.* per lb.

A neck of mutton is a particularly useful and economical joint. Cutlets are cut from the rib-bones; the scrag end may form the basis of excellent mutton broth, or may be stewed with mushrooms; and the middle and best end make a good roasting piece. The meat from the neck of a well-fed sheep has a particularly sweet flavour, and the great variety of dishes that can be made from it will commend it to the ingenious cook, while its cheapness will secure it the favour of the careful housewife. Cost, 6*d.* to 8*d.* per lb.

The shoulder is also an economical joint. It is usually roasted, but can be prepared in a great variety of other ways. Cost, about 10*d.* per lb.

The breast, a cheap portion of the animal, is frequently boned and rolled, with or without forcemeat stuffing, or it may be boiled or stewed. Cost, 5*d.* to 7*d.* per lb.

The loin may be roasted whole, or cut up into chops. Cost, 10*d.* to 1*s.* per lb.

The head forms an inexpensive and nutritious piece for boiling, and its pot-liquor makes, with added vegetables, the sheep's-head broth which is so popular a dish in Scotland. Cost, 7*d.* to 10*d.* each.

The prices given are for home-fed meat. Australian and New Zealand meat may be purchased at about seventy-five per cent less.

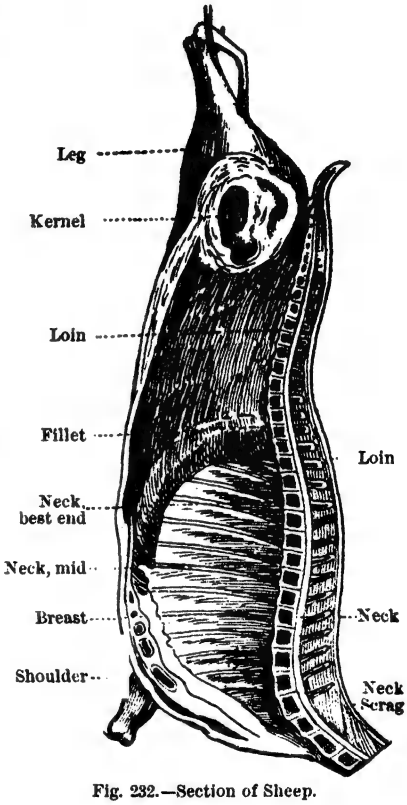


Fig. 232.—Section of Sheep.

Pork: Best Joints.—The manner of dividing pork varies in different districts, but it is generally cut up as follows:—Spare-rib, hand, belly, fore-loin, hind-loin, leg, and head. The spare-rib, usually weighing about eight or nine pounds, is best roasted. The hand is generally too fat to be so treated; it should be salted for four days and then boiled. The belly is either pickled and boiled, or salted and cured for bacon. The loins are roasted or cut into chops. The leg, probably the most profitable joint for a family, is served up roasted, or salted and boiled. The head may be stuffed with herbs and spices and roasted, or the cheeks may be salted and boiled, the remainder being made into brawn.

Bacon is cut up differently from fresh pork, as shown in the illustrations. Hams vary in price according to the reputation of the curers and the place of origin. Yorkshire and Cumberland hams are deservedly held in great esteem, and command a high price; but Wiltshire and Berkshire hams are considered by some persons to be in no way inferior to the

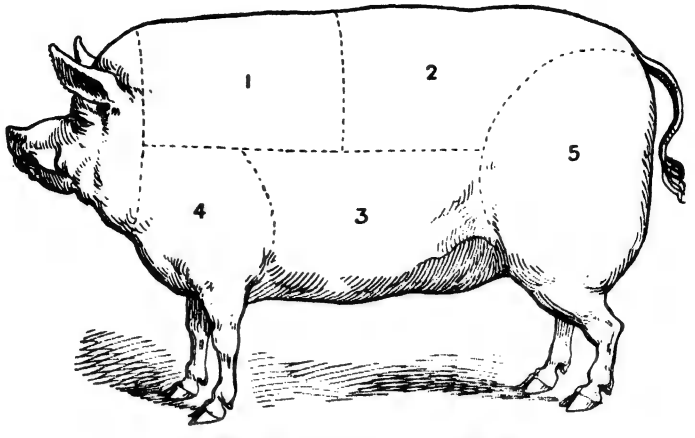


Fig. 233.—Pig: Usual Mode of Cutting up.

1. Neck, or Fore-loin 2. Loin. 3. Belly, or Spring. 4. Hand. 5. Leg.

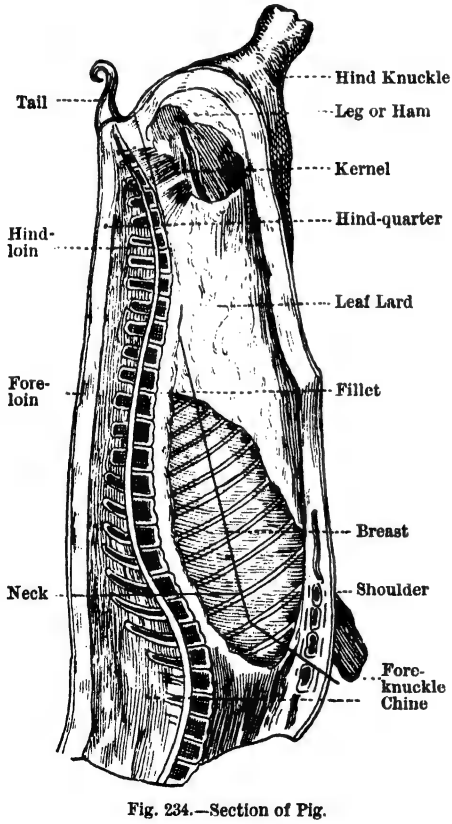
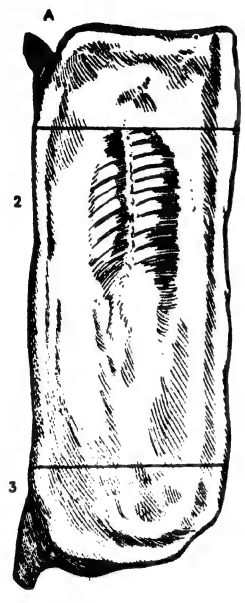


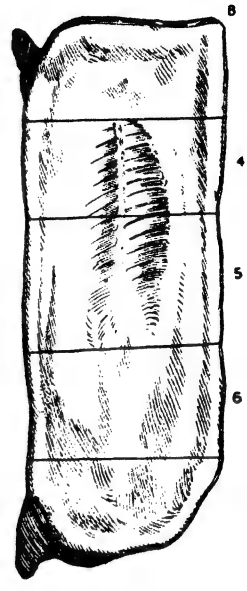
Fig. 234.—Section of Pig.

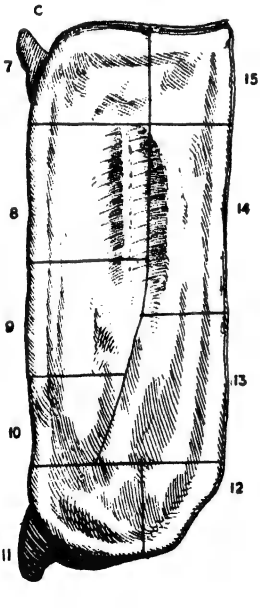
products of the more northern counties. There are several qualities of Irish hams, those of Belfast and Waterford being the most prized. Hams from Canada and the United States have, of late years, been imported into this country in large quantities. Although not possessing the delicate flavour of the home-cured, they are sufficiently palatable to render them popular, and their low price is a recommendation where strict economy has to be exercised.

Veal: Best Joint.—On account of the large amount of gelatine contained in veal it forms a favourite basis for soups, particularly for invalids. For this purpose the knuckle and the leg are generally used. Cutlets are taken from the fillet and the best end of the neck. The loin is considered the best joint for roasting. Breast of veal is an economical joint, and is excellent when stuffed and roasted. The head, boiled, hashed, or in the form of pie, is a dish much esteemed. Veal is insipid when taken by itself, and almost always requires an accompaniment of pronounced flavour, such as bacon, onions, or a piquant sauce. The most highly-prized portion of the animal is the sweet-bread.



No.
1. Fore-end.
2. Middle.
3. Gammon with corner.
1, 2, 3 constitute the side.
2 and 3 form a three-quarter side.
4, 5, 6 cut through side.
7. Fore-hock.
8. Thick streaky.
9. Thin streaky.
10. Flank.
11. Gammon.
12. Corner of gammon.
13. Long Loin.
14. Back and ribs.
15. Collar.
16. Top of thick streaky.
17. Streaky, middle cut.
18. Leanest part of loin.
19. Loin.
20. Back ribs prime cut.
21. Thick back.
22. Prime part of collar.
23. End of collar.





No.		Weight about
1.	.. ..	16 lbs.
2.	.. ..	30 ,,
3.	.. ..	14 ,,
4.	.. ..	10 ,,
5.	.. ..	11 ,,
6.	.. ..	9 ,,
7.	.. ..	8 ,,
8.	.. ..	8 ,,
9.	.. ..	4 ,,
10.	.. ..	3 ,,
11.	.. ..	10 ,,
12.	.. ..	4 ,,
13.	.. ..	7 ,,
14.	.. ..	8 ,,
15.	.. ..	8 ,,
16.	.. ..	2½ ,,
17.	.. ..	5½ ,,
18.	.. ..	2 ,,
19.	.. ..	5 ,,
20.	.. ..	6 ,,
21.	.. ..	2 ,,
22.	.. ..	6 ,,
23.	.. ..	2 ,,
Whole side		60 ,,

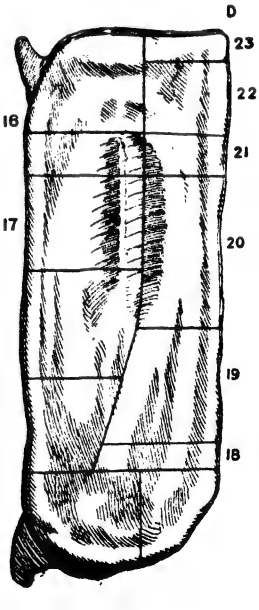


Fig. 235.—A Guide to ordering Bacon.

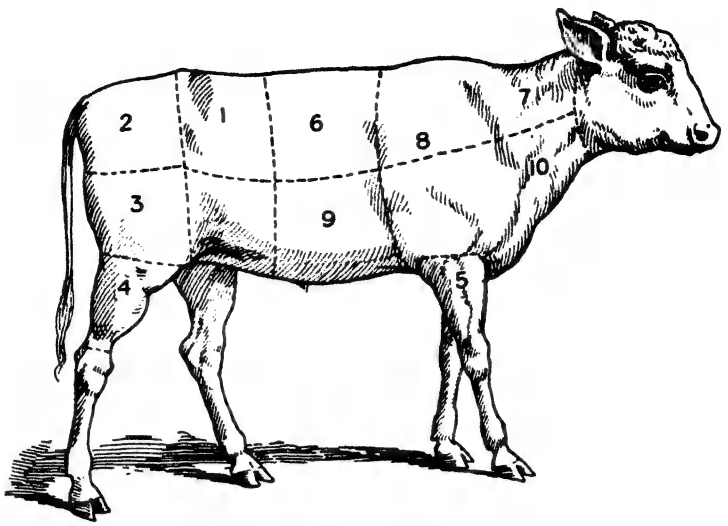


Fig. 236.—Calf: English Plan of Jointing.
1. Loin (kidney end). 2. Loin (chump end). 3. Fillet. 4. Hind-knuckle. 5. Fore-knuckle. 6. Neck (best end). 7. Scrag. 8. Blade-bone. 9. Breast (best end). 10. Brisket.

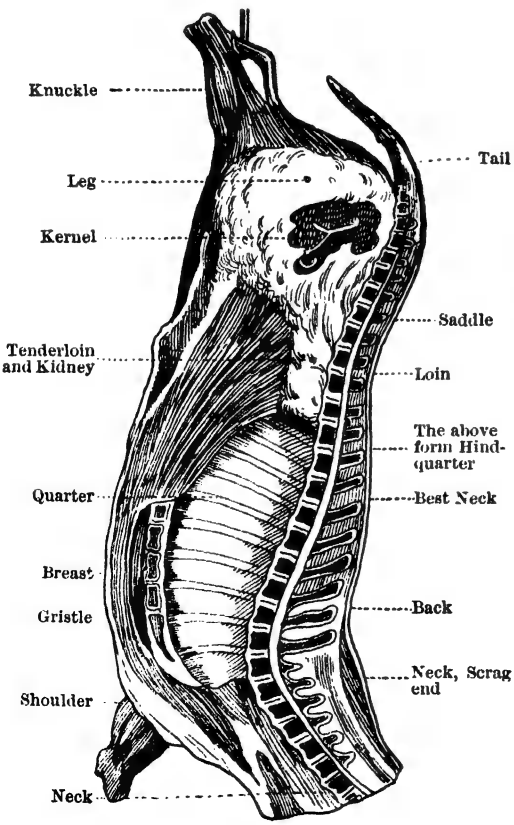


Fig. 237.—Section of Calf.

The French feed their calves with the special object of developing the pancreas, and large numbers of sweet-breads are imported into the London market from Paris, and sold at high prices to West End clubs and restaurants. Cost:—Loin, 10*d.*; knuckle, 7*d.* or 8*d.*; breast, 7*d.* or 8*d.*; fillet, 1*s.*; and shoulder, 8*d.* per lb. Heads, 3*s.* to 4*s.* each; feet, 6*d.* to 8*d.* each.

It should be here stated that different countries have different ways of jointing meat. The English plan, which has been followed here, divides the meat more advantageously for roasting than the Scotch. The latter, on the other hand, adhering closely to the French method, gives more pieces for boiling and stewing.

Venison: Best Joints.—The prime joint of venison is the haunch, but the neck and shoulder are preferred by some. The haunch, like the shoulder, is

generally roasted as a pasty. Chops and cutlets from the loin and neck are treated in the same way as mutton chops. The breast is best adapted for stewing, and other portions form the constituents of game-pies, soups, &c. Venison is less nutritious than beef, but is more easily digested, especially when it has been well hung. It is, indeed, one of the most easily digested kinds of animal food, and can be recommended for people of weak digestion. For them it should be roasted plainly and served without any sweet condiment. It no longer enjoys any great favour, chiefly because the taste for "high" meat is disappearing.

FOOD VALUES.

The subject of food values may seem to some people to be of purely theoretical interest, but before anyone can be thoroughly practical, he must have some idea of the theory of the work in which he is engaged and of the nature of the materials he uses. Although the inquiry might take us over a wide field, the main principles can be stated in a brief form.

The Purposes of Food.—The purposes which food has to fulfil in the human economy are threefold: (1) the maintenance of the temperature of the body; (2) the generation of force; and (3) the building up of the tissues, and supplying the waste which is the natural and inevitable result of wear and tear. It is to be remembered that as long as the vital processes are going on at all, work is being done. Even in sleep the heart is beating and respiration is being performed, and all this means the expenditure of energy. The quantity and quality of food varies, of course, with the age, the climate, the state of health, and the amount of exercise taken. A young growing lad needs more food than an old person, and an active man pursuing a life of outdoor exercise more than one engaged in a sedentary occupation; while dwellers in cold regions, such as the Esquimaux, require a different kind of food from the light diet on which the natives of India can maintain health and strength.

Digestion of Food.—Before food can be of any use to the system, it must be transformed into a condition which will enable it to be absorbed into the blood. This is effected by digestion, a combination of many different processes, chemical and mechanical, their ultimate object being to reduce the food into a liquid state. The useful parts are then taken into the blood-current, while those that are insoluble and indigestible are eliminated by the various excreting organs. Thus, we have mastication and salivation (or the mixing of the food with the saliva in the mouth), swallowing, the digestive process, which takes place in the stomach, and the action of the bile and various other fluids secreted by special organs.

Man, as is well known, thrives best upon a mixed diet of meat, fruit, and vegetables. The ultimate elements of which his body is composed must be the same as those contained in his food, but different foods have different functions to perform.

Need of Water.—Foods may be divided into two great classes, the

inorganic and the organic. The inorganic foods are water and salts. Water is of paramount importance in the economy of the human frame. Without it no food can be swallowed, digested, or assimilated. Out of the 154 lbs. reckoned to be the average weight of a full-grown man, there are about 109 lbs. of water, or about 70 per cent. It constitutes about 78 per cent of the blood—90 per cent if the corpuscles are excluded.

The necessity of water is rendered still more obvious by a consideration of the quantity daily eliminated from the system. The loss by perspiration may be computed at from 18 to 32 ounces, the quantity breathed out from the lungs at about 11 ounces, and that drained off through the kidneys at 50 ounces. In proper diet the supply is fairly apportioned to the demand. A high percentage of water is contained even in much of our solid food.

Proportion of Water in Different Foods.—The following food analyses will show the presence of water in articles commonly reckoned as dry. They are taken from Professor Church's *South Kensington Handbook on Food*. The quantities of water in 100 lbs. of different kinds of food are there stated to be—

1. *Vegetable Food.*

Fresh oatmeal	5 lbs.	Grapes	80 lbs.
Maize-meal	14 „	Parsnips	81 „
Wheaten flour	14 „	Beet-root	82 „
Barley-meal	14 „	Apples	83 „
Peas	14 „	Carrots	89 „
Haricot beans	14 „	Cabbages	89 „
Rice	15 „	Onions	91 „
Bread	40 „	Lettuces	96 „
Potatoes	75 „	Mushrooms	96 „

2. *Animal Food.*

Butter	10 lbs.	Lean of meat	73 lbs.
Bacon	22 „	Fowl	73 „
Cheese	34 „	Fish	74 „
Eggs	72 „	Milk	86 „

It is reckoned that, in this country, every adult requires on an average about 3½ lbs. of water as liquid food per day; or, to put it in another way, he ought to imbibe about four pounds of water for every pound of dry food consumed. Now, although it is clear from the foregoing tables that our ordinary diet is far from being really dry, yet the deficiency of moisture is considerable, and we cannot better supply it than by selecting water itself as our beverage.

Other Inorganic Foods.—Among inorganic substances required by the human frame are various salts. Phosphate of lime is necessary for the bones; phosphate of soda for the cartilages; phosphate of magnesia for the muscles; phosphate of potash for the hair, skin, and nails; iron for the colouring matter of the blood; sulphur for the blood and hair; and phosphorus for the brain and nerves. The only salt taken by itself as a food

is common table-salt, or chloride of sodium; the others are extracted from the various food-stuffs. Ripe fruits and fresh vegetables are particularly rich in salts, as also are peas, beans, lentils, and oatmeal.

Organic Foods: Heat-giving.—Organic foods may be divided into two groups—the carbonaceous or heat-giving and the nitrogenous or flesh-forming. Substances belonging to the former of these groups, whatever be

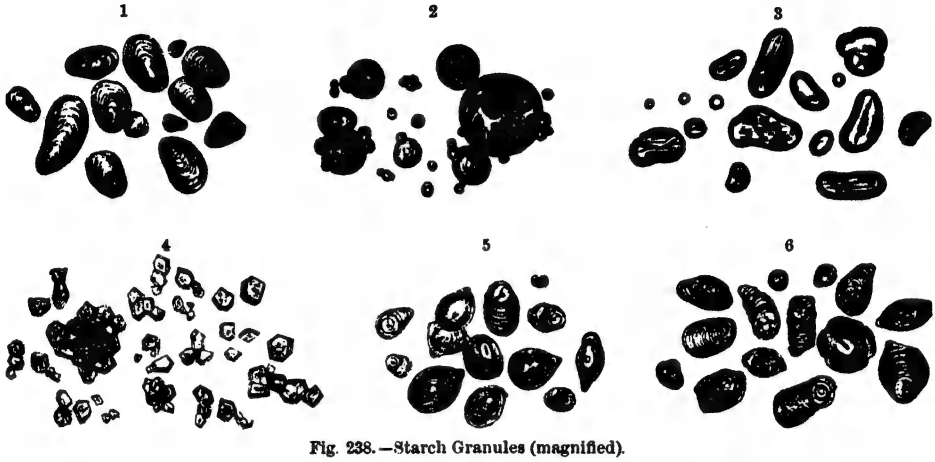


Fig. 238.—Starch Granules (magnified).

1. Potato. 2. Wheat. 3. Bean flour. 4. Rice. 5. St. Vincent arrow-root. 6. Bermuda arrow-root.

their nature, resolve themselves in the stomach into starch, sugar, and fat. Their main functions are to maintain heat and to evolve force and energy.

Starch.—Starch is the flour of all dry vegetables, and is insoluble (although it is diffusible) in water. By itself it cannot be digested, but nature converts the stomach into a chemical laboratory, and by the action of the saliva turns the insoluble starch into soluble sugar. The articles which yield the most abundant supply of starch are potatoes, arrow-root, sago, tapioca, wheat, oats, rice, and maize. Starch foods should not be taken continuously, or alone, as articles of diet, but should always be accompanied by some substance yielding a proper proportion of nitrogen to the system.

Sugar.—Sugar contains the same elements as starch, but in different proportions. It occurs in wheat, barley, oats, lentils, beans, peas, beet, carrots, maple, maize, and in many fruits and roots besides the sugar-cane. It is also present in milk. Its value as a food is shown in the universality with which it is supplied by nature to the young of all the higher animals in the milk of the mother.

Fat.—Fat, the third constituent of the carbonaceous group, is, like starch, insoluble in water, and therefore cannot, in its natural state, be absorbed by the system. Nature, however, once more lends its aid, and, by mixing with the fat the alkali contained in the bile and the pancreatic fluid, forms a soapy compound which can easily be absorbed. The use of fat is to supply the blood with a quantity of fuel for combustion. All

excess of fat generated in the system, and not thus used by the lungs, is deposited in the cells of the adipose tissue, where it is accumulated until the exigencies of the system require its use. Fat or oil occurs in many members of the vegetable kingdom, such as the palm, olive, and almost all kinds of nuts. It is also found in milk, there being 3·5 in cows', and 5·0 in goats', milk per 100 parts.

The following table will show the proportion of fat in some other familiar articles of food:—

Salmon ...	5·0 in 100 parts.	Cheese ...	25·0 in 100 parts.
Herrings ...	6·7 „ „ „	Beef	30·0 „ „ „
Mackerel ...	7·0 „ „ „	Mutton ...	40·0 „ „ „
Veal	16·0 „ „ „	Pork	50·0 „ „ „

Organic Foods: Flesh-forming.—The nitrogenous or flesh-forming division of organic foods is rich in albumen, fibrin, casein, and gelatine.

Albumen.—Albumen is represented by the white of egg and the lean of meat. In its pure state it is a clear white fluid which solidifies when exposed to a temperature of 180° Fahr., 32° below the boiling-point of water. The vegetable world also yields albumen. Rye, wheat, oatmeal, and peas, for instance, contain a large amount of this valuable food. Hence it is quite possible to maintain health on a properly regulated vegetarian diet, though it may not always be desirable. The nervous system of the body, and that wonderful organization the brain, are largely dependent for their nutrition upon the albuminous constituents of food; albumen also forms a large proportion of the composition of the blood. And here it should be noted that alcohol, if taken into the stomach, renders albumen incapable of being acted upon for the benefit of the system. The cause of those distressing mental and nervous affections from which drunkards suffer is that a food which should go to the repair and healthy vigour of the brain and nervous system is prevented from discharging its proper function.

Fibrin.—Fibrin, in the solid state, constitutes the bundles of minute fibres of which all the muscles of the body are composed. In a liquid state, held in solution in the blood, it also circulates throughout the system. It is as abundant in the vegetable as in the animal kingdom, but, when found in the former, it is known as gluten. The plants which yield the largest amount of it are oats, barley, wheat, maize, rye, rice, and potatoes, in the order named. Besides its pre-eminence as a nutritive constituent of wheaten flour, gluten helps the rising of dough when inflated by carbonic acid gas, thus rendering the bread light and spongy.

Casein.—The third form of nitrogenous food-matter is casein, which is the basis of cheese. It is found chiefly in milk, from which it is separated by the action of rennet. The casein by this means is coagulated into curds, which, when pressed, form cheese. Casein differs from fibrin chiefly in containing no phosphorus. The fact that it is the only flesh-forming constituent of milk is a proof of its nutritiveness, and also of its digestibility when it is in a fluid state.

Gelatine.—The fourth and last constituent of flesh-forming food is gelatine. It abounds in the skin, mucous membranes, connective tissues, tendons, and ligaments. In food it is represented by isinglass, French or sheet gelatine, and ossein or gelatine of the bones. The two first varieties are used, with various flavourings, for table jellies and other articles of diet; the last is extracted from bones by boiling in order to give thickness and consistency to soups. This class of food-stuffs, of which calves'-foot jelly is a well-known type, deservedly hold a high position in sick-room dietary; for, although their value as flesh-formers may be questioned, they undoubtedly are light, nourishing, and palatable articles of diet.

ADVANTAGE OF MIXED DIET.

An average healthy man should eat daily, in order to keep in good health, 17½ ounces of carbonaceous food, 4½ ounces of nitrogenous food, and 1 ounce of mineral salts. The proportion of organic constituents in some of the most familiar food-stuffs will be seen by the following table of percentages:—

	Water.	Nitrogenous.	Carbonaceous.	Salts and Ashes.
Lean of butcher's-meat ...	63·4	21·5	14·3	0·8
White bread	24·0	10·7	64·3	1·6
Peas	16·1	29·0	51·5	3·5
Broad beans	14·5	21·0	62·6	2·5
Haricot beans	18·0	28·0	51·0	3·0
Lentils	15·0	29·0	53·0	3·0
Hominy	1·4	11·5	85·4	1·7
Oatmeal	9·0	12·0	77·0	2·0

A consideration of the foregoing figures will show that a mixed diet is the simplest way of sustaining healthy life, as no single article of food (with the exception of milk) contains the necessary constituents in proper proportions. Even bread, which is popularly supposed to be the staff of life, fails when this test is applied to it. Taking Dr. Goodfellow's figures, the following table shows that, when compared with the standard diet of a healthy man, white bread contains a surplus of starch:—

	Standard.	White Bread.
Dry proteid (albumen)	4·50 oz.	3·00 oz.
Starch and sugar	14·50 „	19·00 „
Fat	3·00 „	·30 „
Ash	1·00 „	·70 „
	23·00 oz.	23·00 oz.

Bread is thus deficient in fat and albumen, and overcharged with starch. The proper proportion of constituents can be restored by eating it with cheese (casein) and butter (fat), or with fat beef or pork.

Nature often seems to suggest the proper combination of foods to persons who cannot lay claim to any scientific training. Such dishes of the labouring classes, for instance, as beans and bacon, potatoes and herrings, pork and pease-pudding, and Irish stew, combine the nitrogenous and carbonaceous elements in the required proportions. Soup is also a convenient and nourishing form of food, containing as it does albumen and fat from the meat which forms its basis, gelatine from the bones, and starch, gluten, and salts from the vegetables incorporated with it. The custom, too, of eating vegetables with butcher-meat is a truly scientific one, the excess of carbonaceous elements in the former counteracting the deficiency in the latter.

Diet based on Digestibility.—It would be unsafe, however, to base a dietary table solely upon the constituents of various foods, as much of their nutritive value depends upon their digestibility. In this connection it must be remembered that human stomachs are not all constituted alike, and that what is digestible in one person's stomach may be more or less insoluble in another's. Pork, fish, eggs, milk, game, geese, turkeys, and potatoes are not equally digestible by all, and everyone must eliminate from his dietary any article which he has found from experience to disagree with him. But in the case of an ordinary healthy person the following table of the times required for the digestion of different kinds of food will be found approximately correct:—

	Hrs.	Mins.
Tripe, sweet-breads, lamb's trotters, white fish	1	0
Eggs, raw and well-beaten	1	30
Eggs, hard boiled or fried	3	30
Rice, boiled	1	0
Chicken, boiled	1	30
Chicken, fricasseed	2	45
Lamb, boiled	2	30
Turkey, roast or boiled	2	30
Mutton, boiled or broiled	3	0
Mutton, roast	3	15
Beef, roast or boiled	3	30
Beef, fried	4	0
Beef, salt	4	15
Pork, roast	5	15

Salmon, herrings, and eels are indigestible from their oiliness. Game is digestible on account of its short grain and leanness. Vegetables, unless thoroughly cooked, are generally indigestible. Ripe fruits are rich in phosphates and sulphates, and are both wholesome and nutritious.

From the foregoing tables it will be easy for any intelligent person to construct a dietary suited to his own constitution, needs, and means.

The following table, therefore, can only be regarded as approximately correct. For, if the products of Greater Britain that are arriving in ever-increasing numbers are included, many of the articles enumerated may be regarded as being in season all the year round.

JANUARY.

Meat.—Beef, mutton, pork, house lamb, doe venison.

Poultry and Game.—Ducks, fowls, hares, larks, pigeons, pheasants, plover, partridges, ptarmigan, quail, rabbits, snipe, turkeys, teal, woodcock, wild-fowl.

Fish.—Barbel, bream, brill, carp, cod, crabs, crayfish, dory, eels, gurnets, haddocks, halibut, hake, herrings, lampreys, ling, lobsters, mussels, oysters, perch, pike, prawns, scallops, shrimps, skate, smelts, soles, sprats, sturgeon, tench, turbot, white-bait, whiting.

Vegetables.—Artichokes, beet, broccoli, Brussels sprouts, cabbage, carrots, celery, leeks, onions, parsnips, savoys, spinach, turnips, tomatoes.

Fruit.—Almonds, apples, bananas, grapes, medlars, nuts, oranges, pears.

FEBRUARY.

Meat.—Beef, mutton, veal, house lamb, pork.

Poultry and Game.—Capons, chickens, ducks, fowls, hares, larks, pheasants, partridges, plover, ptarmigan, prairie-hens, rabbits, snipe, turkeys, teal, widgeon, woodcock.

Fish.—Carp, cod, crabs, crayfish, dory, eels, flounders, gurnets, herrings, haddocks, lobsters, mackerel, oysters, plaice, perch, pike, scallops, salmon, skate, smelts, sprats, trout, tench, white-bait.

Vegetables.—Artichokes, beet, Brussels sprouts, celery, cabbage, cucumbers, greens, leeks, lettuce, mushrooms, onions, parsnips, savoys, spinach, turnips, tomatoes.

Fruit.—Apples. bananas, figs, grapes, melons, nuts, oranges, pines, pears, rhubarb (forced).

MARCH.

Meat.—Beef, mutton, veal, pork, house lamb.

Poultry and Game.—Black game, capons, chickens, ducks, ducklings, fowl, wild-geese, guinea-fowl, hares, ortolans, (partridges, pheasants, and plover until middle of month), ptarmigan, prairie-hens, quail, ruffs and reeves, rabbits, snipe (until 15th), teal, widgeon, woodcock.

Fish.—Carp (till 15th), crabs, cod, crayfish, dory, eels, flounders, gurnets, haddocks, lobsters, mackerel, oysters, (perch and pike to 15th), salmon, scallops, smelts, skate, sprats, trout, turbot, (tench till 15th), white-bait.

Vegetables.—As in February, with the addition of new potatoes.

Fruit.—As in February.

APRIL.

Meat.—Beef, mutton, grass lamb, house lamb, pork.

Poultry and Game.—Capons, chickens, ducks, ducklings, fowls, guinea-fowls, hares, leverets, ortolans, prairie-hens, plovers' eggs, quail, ruffs and reeves, rabbits.

Fish.—Crabs, crayfish, cod, eels, flounders, gurnets, haddocks, lobsters, mackerel, oysters, prawns, salmon, scallops, smelts, skate, sprats, trout, turbot, white-bait.

Vegetables.—Artichokes, asparagus, beet, cucumbers, eschalots, leeks, lettuce, spring onions, new potatoes, parsnips, spinach, tomatoes, young turnips.

Fruit.—Apples, almonds, bananas, figs, grapes, pines, rhubarb.

MAY.

Meat.—Beef, mutton, grass lamb, veal.

Poultry and Game.—Capons, chickens, ducks, fowls, guinea-fowl, hares, leverets, ortolans, plovers' eggs, quails, ruffs and reeves, rabbits.

Fish.—Bass, brill, crabs, crayfish, eels, gurnets, halibut, haddocks, lobsters, mackerel, plaice, prawns, salmon, soles, scallops, smelts, skate, turbot, trout, white-bait.

Vegetables.—Asparagus, beet, new carrots, cucumbers, lettuce, new potatoes, spring onions, new turnips, spinach.

Fruit.—Apples, almonds, bananas, figs, grapes, green gooseberries, pines, rhubarb.

JUNE.

Meat.—Beef, mutton, lamb, veal, buck venison.

Poultry and Game.—Capons, chickens, ducks, rowls, goslings, hares, leverets, ortolans, plovers' eggs, quails, ruffs and reeves, rabbits, turkey poults.

Fish.—Bass, brill, (carp after 15th), crabs, crayfish, eels, gurnets, halibut, haddocks, lobsters, mackerel, plaice, (perch after 15th), prawns, (pike after 15th), salmon, soles, turbot, trout, (tench after 15th), whiting, white-bait.

Vegetables.—Asparagus, beet, new carrots, cucumber, greens, leeks, lettuce, peas, new potatoes, spring onions, spinach, tomatoes.

Fruit.—Almonds, bananas, cherries, currants, figs, grapes, gooseberries, pines, raspberries, strawberries

JULY.

Meat.—Beef, lamb, mutton, veal, buck venison.

Poultry and Game.—Capons, chickens, ducks, fowls, goslings, hares, leverets, ortolans, plovers' eggs, quails, ruffs and reeves, rabbits, turkey poults.

13
11 (in centre)

7
VEGETABLES

Fish.—Bass, brill, carp, crabs, crayfish, dory, eels, gurnets, halibut, haddocks, lobsters, mullet, plaice, perch, prawns, pike, salmon, soles, sea-bream, turbot, trout, tench, whiting, white-bait.

Vegetables.—Asparagus, beet, broad-beans, cucumbers, cabbage, French beans, leeks, spring onions, scarlet-runners, peas, new potatoes, spinach, tomatoes.

Fruit.—Almonds, bananas, cherries, currants, figs, grapes, gooseberries, pines, raspberries, strawberries.

AUGUST.

Meat.—Beef, lamb, mutton, veal, buck venison.

Poultry and Game.—Capons, chickens, wild and tame ducks, fowls, grouse (on 12th), hares, larks, leverets, plover, rabbits, snipe, teal, turkey poults, widgeon, woodcock.

Fish.—Bass, brill, carp, crabs, crayfish, dory, eels, flounders, gurnets, herrings, halibut, haddocks, lobsters, mullet, plaice, perch, prawns, pike, salmon, soles, sea-bream, turbot, trout, tench, whiting, white-bait.

Vegetables.—Beet, cauliflowers, cucumbers, cabbage, field mushrooms, French beans, leeks, peas, scarlet-runners, spinach, vegetable marrow.

Fruit. — Apricots, almonds, bananas, cherries, currants, filberts, figs, gooseberries, grapes, green-gages, melons, mulberries, nectarines, pines, pears, peaches, plums, raspberries, strawberries.

SEPTEMBER.

Meat.—Beef, mutton, New Zealand lamb, pork, veal, buck venison.

Poultry and Game.—Capons, chickens, ducks (wild and tame), fowls, geese, grouse, hares, larks, partridges, pheasants, plovers, rabbits, snipe, turkeys, teal, widgeon, woodcock.

Fish.—Bass, brill, carp, crabs, cod, crayfish, dory, eels, flounders, gurnets, herrings, halibut, haddocks, lobsters, mackerel, mullet, oysters, plaice, perch, pike, soles, shrimps, sea-bream, turbot, tench, whiting.

Vegetables.—Brussels sprouts, beet, celery, cauliflower, cabbage, cucumbers, French beans, mushrooms, leeks, parsnips, scarlet-runners, spinach, tomatoes, vegetable marrows.

Fruit.—Apples, apricots, almonds, bananas, cherries, cob-nuts, damsons, filberts, figs, grapes, green-gages, melons, medlars, mulberries, nectarines, pines, pears, peaches, plums, walnuts.

OCTOBER.

Meat.—Beef, New Zealand lamb, mutton, pork, veal, doe venison.

Poultry and Game.—Black game, capons, chickens, capercailzie, wild-ducks, fowls, geese, grouse, hares, larks, pheasants, partridges, plovers, rabbits, snipe, turkeys, teal, widgeon, woodcock.

Fish.—Brill, carp, crayfish, cod, dory, eels, flounders, herrings, halibut, haddocks, lobsters, mullet, mackerel, oysters, plaice, perch, pike, soles, scallops, smelts, skate, sea-bream, turbot, tench, whiting.

Vegetables.—Jerusalem artichokes, Brussels sprouts, beet, celery, cauliflowers, cucumbers, French beans, greens, leeks, parsnips, savoys, scarlet-runners, turnips, spinach, tomatoes, vegetable marrows.

Fruit.—Apples, apricots, almonds, cob-nuts, filberts, figs, grapes, melons, medlars, nectarines, oranges, pines, pears, peaches.

NOVEMBER.

Meat.—Beef, New Zealand lamb, mutton, pork, veal, doe venison.

Poultry and Game.—Black game, capons, capercailzie, chickens, wild and tame ducks, fowls, geese, grouse, hares, larks, landrails, pheasants, partridges, plovers, ptarmigan, rabbits, snipe, turkeys, teal, widgeon, woodcock.

Fish.—Brill, carp, crabs, cod, crayfish, dory, eels, flounders, herrings, halibut, haddocks, lobsters, mackerel, oysters, plaice, perch, pike, soles, scallops, smelts, skate, turbot, tench, whiting.

Vegetables.—Jerusalem artichokes, Brussels sprouts, beet, celery, carrots, cauliflowers, greens, leeks, parsnips, savoys, winter spinach.

Fruit.—Apples, almonds, bananas, chestnuts, figs, grapes, melons, oranges, pines, pears, pomegranates, quinces, walnuts.

DECEMBER.

Meat.—Beef, New Zealand lamb, mutton, pork, veal, doe venison.

Poultry and Game.—Black game, capons, capercailzie, ducks, fowls, geese, grouse (until 10th), hares, larks, landrails, pheasants, partridges, plovers, ptarmigan, rabbits, snipe, turkeys, teal, widgeon, woodcock.

Fish.—Brill, carp, crabs, crayfish, cod, dory, eels, flounders, gurnets, herrings, halibut, haddocks, lobsters, mackerel, oysters, plaice, perch, pike, soles, scallops, smelts, skate, sprats, tench, whiting.

Vegetables.—Jerusalem artichokes, Brussels sprouts, beet, celery, cucumber, greens, leeks, carrots, parsnips, turnips, tomatoes, winter spinach.

Fruit.—Apples, almonds, bananas, chestnuts, figs, grapes, melons, oranges, pears, pines, forced rhubarb, walnuts.

THE STORE CUPBOARD.

THE PRESERVING OF EGGS FOR WINTER.

When eggs are plentiful and cheap, the careful housewife will take advantage of the market in order to lay in a stock. The first essential is to see that they are fresh and sound. In the chapter which treats of the management of the larder various methods of testing eggs are described; they need not therefore be repeated here.

Many different ways of preserving eggs find favour with those who have tried them. One of the most popular and most satisfactory is treatment by lime. For this purpose take a large earthen pot—a glazed one is best,—put in it ¼ lb. unslaked lime and 6 ozs. salt, and pour 3 gallons boiling water over them. When the mixture is cold add ½ oz. cream of tartar. Begin putting the eggs in it the next day. The lime will remain at the bottom of the vessel, and the eggs must rest upon it. They must be well covered with the liquid. Preserved in this way they will keep for two years.

Another method—by using a solution of gum arabic—is said to answer well. The eggs should be smeared thoroughly with it, and covered when dry with bran or saw-dust.

They may also be preserved by putting them in a net or muslin bag, dipping them for about 10 seconds in boiling water, and packing them afterwards in bran or saw-dust. By this process the whites are slightly coagulated, which prevents the entrance of air.

Salt is a good preservative. Take a dry box, cover the bottom with a layer of salt, and put in as many eggs as it will hold, taking care that they do not touch one another. Sprinkle in sufficient finely-powdered salt to fill all the vacant spaces, and then add a complete layer of salt. Continue the process until the box is nearly full, and let the top layer of salt be about a couple of inches thick. Press down firmly, and cover with a thick cloth and tight-fitting lid. Store in a cool place. Some persons use wood ashes and a little salt instead of salt alone.

Another method of preserving eggs is by pickling them. When thus treated they are useful for the garnishing of many dishes, such as salads and curries. Boil 16 eggs for ¼ hour: dip them in cold water, and take off the shells. Boil 1 quart of vinegar for 10 minutes with ½ oz. black pepper, ½ oz. Jamaica pepper, and ½ oz. ginger. Put the eggs in a jar, and pour the boiling vinegar over them. When cold, tie tightly down with a bladder.

They will be ready for use in about a month. The best time to pickle them is the spring.

The following is another recipe for pickling eggs, which is preferred by many:—Hard boil and shell 30 eggs. Boil 1 pint vinegar with 1 oz. black peppercorns, 1 oz. allspice berries, ½ oz. ginger, and 1 tea-spoonful salt, until reduced to half the quantity. Then add 3 pints of vinegar, bring to the boil, and pour over the eggs. The vinegar should come an inch or more above the eggs, and a covering of bladder is essential. Keep for a month before untying.

THE CURING OF HAMS.

Hams are cured in many ways, different countries and even different English counties having different methods. Foreign hams bearing such names as Westphalian, Hamburg, and American are imported into Great Britain very largely. At home we have Irish, York, Cumberland, Berkshire, Wiltshire, and many others. The systems of curing, however, all bear a close resemblance to one another.

In order to secure the best results, the pig should be at least a year old, and killed in weather which is not damp, frosty, or very hot. Before being put into pickle, the hams should hang for a couple of days in a dry cold room or passage where the thermometer registers 38° F. to 40° F.

The various materials used for imparting the delicious smoky flavour to hams are oak saw-dust, oak chips, peat, wheat straw, ash saw-dust, ash chips, and the dust and chips of other hard woods. The two of the greatest value are oak saw-dust and peat. There is no place better for smoking purposes than the old-fashioned chimney of a farmhouse where peat fires are in use. In former times, before the existence of great bacon factories, chimney curing was the universal mode. In a book published at Annan in 1811, by Robert Henderson, a farmer, the author quaintly tells his experience of the manner of smoking hams and bacon then practised in the South of Scotland. "I practised", he writes, "for many years the custom of carting my flitches and hams through the country to farmhouses, and used to hang them in their chimneys and other parts of the house to dry. This plan I soon found was attended with a number of inconveniences, having to take along with the bacon pieces of timber to fix up in the different houses, for the purpose of hanging the flitches and hams. For several days after they were hung up they poured down salt and brine upon the women's caps, and now and then a ham would fall down and break a spinning-wheel, or knock down some of the children, which obliged me to purchase a few ribbons, tobacco, &c., to make up the peace."

The following recipes are not difficult to follow, and are representative of the most approved modern methods of curing.

Gayonne Recipe.—Rub the ham all over with ½ lb. salt and 1 oz. salt-

petre. Make a pickle by boiling together wine and water in equal parts, with 1 tea-spoonful of juniper berries, a sprig of thyme, basil, and sage, 2 bay-leaves, some whole peppercorns and coriander seed, ½ tea-spoonful of each. When the pickle is well flavoured, strain and pour off. Lay the ham in a pan, pour the pickle over, and sprinkle salt on it; leave it for three weeks, turning daily; then dry it, and smoke it with aromatic wood. When smoked, it should be rubbed over with wine lees, then dried, and finally wrapped in paper, and stored in wood ashes.

Hamburg Hams.—The ham should be washed with soft water, or with brandy, which greatly improves the flavour. The following mixture should then be rubbed into it:—salt 8 ozs., saltpetre 2 ozs., white pepper 2 ozs., powdered cloves ½ oz. It should then be put into a vessel with bay-leaves and garlic, and covered with a clean cloth. At the end of 24 hours it should be washed with cold water, and put for a fortnight into a tub of wine dregs, being finally enveloped in thin paper, and hung in a chimney for a month or six weeks, and smoked with juniper wood.

M. Ude's Recipe.—As soon as the pig is sufficiently cold to be cut up, take the hams, rub them well with common salt, and let them drain for three days. Dry them, and, for 2 hams weighing 16 to 18 lbs. each, take 1 lb. salt, 1 lb. moist sugar, and 2 ozs. saltpetre, and rub the hams thoroughly with this mixture. Then put them into a deep pan with the skin downwards, and turn and baste them daily for a month, at the end of three days pouring a bottle of good vinegar over them. Drain and dry them well, and if they are to be smoked, hang them high in the chimney to keep the fat from melting.

Westphalian Hams.—Rub the hams well with the following mixture:—saltpetre, sal prunella, moist sugar, bay-salt, and bruised juniper berries, ½ lb. of each. Turn them frequently for three days, then leave them for a week; after which make a brine with the above ingredients, with the addition of 1 quart of vinegar and 1 quart of water. Baste them daily for a fortnight with it, and then take them up and wipe dry. Hang them in a current of air, and smoke for two or three weeks with oak saw-dust and juniper chips, to which bracken or ferns may be added. They must be placed high in the chimney so that the smoke will come into contact with them only when it is very cool.

Worlingworth Rectory Recipe.—To every 16 lbs. of pork take 1 lb. coarse sugar, 1 lb. treacle, 1 oz. bay-salt, 1 oz. sal prunella, 1 oz. saltpetre. Rub the pork daily for two or three days with common salt, then rub in the above ingredients, and rub well daily for a month or six weeks. If required smoked, it must be hung for a month over a wood fire.

POTTED MEATS.

Potted meats form a very useful and desirable addition to the contents of the store-room. From an economical point of view they commend themselves to the housewife, as they can be made from the scraps of almost any cooked meat, provided always that it is sweet and good.

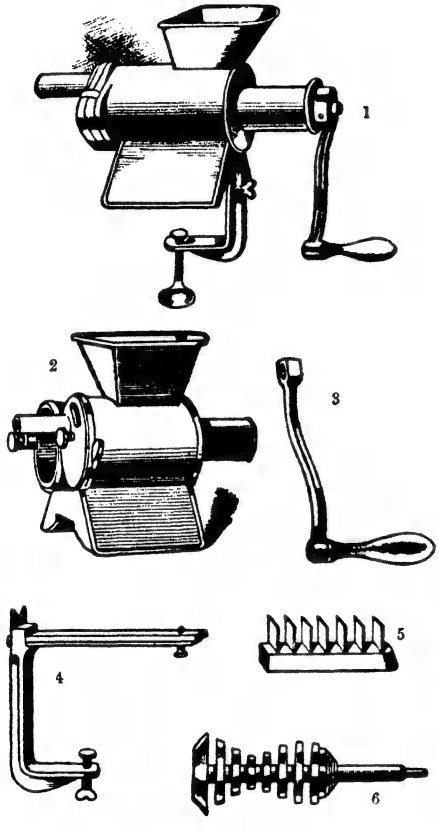


Fig. 239.—Kent's Combination Mincer.

Parts of machine: 1. Machine complete, ready for fixing to table. 2. Body (fineness or coarseness of cut is regulated by rotary disc at delivery end). 3. Handle. 4. Clamp. 5. Knives. 6. Propeller.

In order that they may be in reality as well as in name "table delicacies", it is necessary to pay particular attention to the seasoning. The spices suited to one kind of meat are quite unsuited to another. **All gristly portions of the meat, skin, hard outside fat, and, in fact, everything which will not pound into a smooth paste in the** mortar, should be removed.

The meat should always be chopped fine, in a mincing-machine (fig. 239) if possible, before pounding it in the mortar. The pots should not be quite filled; room should be left for a layer of melted suet or clarified butter about ¼ inch thick. This layer may be removed before placing the meat on the table. The pots should be covered with vegetable parchment in order to keep out dust and dirt.

Australian Meat. — Mince very fine the lean part of the meat, remove all skin and gristle, and flavour rather highly with pepper, salt, and a little powdered allspice. With corned meat the salt may be omitted. Pound in a mortar, adding from time to time a little oiled butter, until it is quite smooth. Press it into pots, and pour a little clarified butter on top of each.

Beef.—Cooked beef may be used for potting, in which case it is treated as in the preceding recipe; but it is best made in the following manner:—Fill a covered jar with 2 lbs. of lean meat, without bone or gristle. Place the jar in a sauce-pan of boiling water; put a dessert-spoonful of water into

1 salt-spoonful sugar, 2 cloves pounded, ¼ pint cold gravy, and 4 ozs. clarified butter. When the ingredients are thoroughly blended put the meat into pots, and pour melted butter or suet over it.

Herrings.—Clean the fish without washing them, cut off the heads and tails, remove the backbones, and sprinkle over them a little salt and powdered mace. Let them remain 3 or 4 hours, then wipe off the seasoning, and put the fish into a well-buttered pan. Strew pepper, salt, and grated nutmeg over them, together with small lumps of butter here and there, and bake in a moderate oven. When they are cooked enough, which will be in about 2 hours, drain the liquor off, pour sufficient clarified butter over them to cover them completely, and keep in a cool place.

Mackerel.—Choose perfectly fresh fish of moderate size. Cut off the heads and tails, remove the bones, take out the dark-brown bitter portion near the head, and divide the fish into pieces of convenient size. Lay these in a jar, season with pepper and salt, cover with vinegar, and put shallots and bay-leaves on top, one of each for four fish. Cover closely, and bake gently for 2 hours.

Ox Tongue.—Take the remains of a boiled pickled tongue and a small quantity of roast beef or poultry. Cut off the skin and hard parts. Mince finely, and pound in a mortar, with 6 ozs. fresh butter, 1 tea-spoonful powdered mace, a pinch of cayenne, ½ tea-spoonful pounded cloves, and half a nutmeg grated, to every 1½ lb. meat. Mix thoroughly, press into pots, and cover with clarified butter.

Pheasant.—Take the meat of a cold roast pheasant; mince it, and pound in a mortar, with 2 ozs. lean ham, 1 table-spoonful sherry, 1 table-spoonful of ketchup, 5 ozs. clarified butter, a little salt and cayenne. Mix thoroughly, and press into pots. Cover with clarified butter or suet.

Shrimps (Whole).—Put 1 pint freshly boiled and shelled shrimps into a dish, and sprinkle over them ½ tea-spoonful salt, 1 tea-spoonful white pepper, and a pinch of grated nutmeg. Put 1 oz. butter in little pieces here and there upon them, and place the dish in a moderate oven for 10 minutes, until the butter is melted. Let the shrimps get cold. Press them into jars, and pour upon them butter which has been melted and is just beginning to set.

THE MAKING OF PICKLES.

Although there are excellent brands of pickles in the market, yet many persons, especially those who possess kitchen-gardens, prefer to make their own. It cannot be doubted that pickles made from freshly-cut vegetables and carefully prepared in the household are often superior in flavour and quality to those made in a large factory.

As a piquant accompaniment to cold meat, and as a flavouring to various made dishes, pickles are universally esteemed, and form an item in the contents of every well-stocked store-room.

The wholesomeness or unwholesomeness of pickles is a subject upon which dietetic authorities are divided in opinion. The truth seems to be that, when taken in small quantities as an adjunct to other food, they exercise a stimulating influence upon the salivary glands and organs of digestion which is conducive to the proper assimilation of the food, but when taken in excessive quantity they defeat their object by loading the stomach with matter which is itself difficult to digest.

Two simple rules of universal application in the making of pickles are that the best and purest vinegar should be used, and that copper vessels should be avoided. When a pale pickle is desired, white wine vinegar should be employed. An enamelled or a tin-lined pan should be used for boiling the vinegar, or, failing these, an earthenware jar. The pickles, when done, should be put into glass jars, and corked and bladdered over so as to be thoroughly air-tight.

Chutney.—1½ lb. brown sugar, ¾ lb. salt, ¼ lb. garlic, ¼ lb. onions, ¾ lb. powdered ginger, ¼ lb. dried chillies, ¾ lb. mustard seed, ¾ lb. stoned raisins, 30 large, sour, unripe apples, 1 quart vinegar. The apples should be peeled, cored, sliced, and boiled with 1½ pint vinegar and the sugar. They must be quite cold before being mixed with the other ingredients. The mustard seed should be washed in vinegar and dried in the oven. Stone and chop the raisins. Pound the garlic, onions, chillies, and ginger in a mortar. When the apples are cold, add the mustard seed, raisins, chillies, salt, ginger, onions, garlic, and the remaining ½ pint vinegar. It must be well stirred until all are thoroughly blended. Put into bottles with wide necks, cork them, and tie a bladder over them.

Gherkins.—Put the gherkins into a large stone jar, and cover them with brine strong enough to float an egg. Cover the jar, and leave it for

two or three days, until the gherkins begin to turn yellow; then drain them, and pour boiling vinegar over them. Put bay-leaves on the top, keep the jar in a warm place, and heat the vinegar afresh every day, until the gherkins attain the desired degree of greenness. Boil fresh vinegar, and with it 1 large blade mace, 2 ozs. whole pepper, 4 bay-leaves, and ½ doz. small silver onions to each quart. Put the gherkins into wide-mouthed bottles, pour the vinegar over them, first allowing it to cool a little to avoid cracking the bottles, and cork securely when cold.

Nasturtiums.—Gather some young nasturtium seeds on a dry day. Make a pickle by dissolving 1½ oz. salt in 1 quart vinegar, add 2 cloves, ½ tea-spoonful scraped horse-radish, and 1 leaf tarragon. Wash the seeds in cold water, let them dry, put them into pickle bottles, and pour in the vinegar, &c. Cork and seal. This can be used instead of caper sauce.

Onions.—Boil a strong brine of salt and water, and then let it cool. Peel the outside skin off some small onions, remove the tops and fibres, and pour the brine over them. Allow them to stand 4 hours, then strain; peel off another skin, dry the onions in a cloth, and put them into glass bottles. Boil 1 oz. bruised ginger, 1 oz. whole pepper, 12 cloves, in 2 quarts vinegar. When strongly flavoured, strain, and when it has slightly cooled, pour it over the onions.

Piccalilli.—Slice up the vegetables which are to be pickled, such as cauliflowers, white cabbage, gherkins, small onions, radish pods, and green tomatoes, put them into strong salt and water for two or three days, drain them, and dry in a cloth. Boil in 2 quarts vinegar a small bag containing mace, cloves, black pepper, and Jamaica pepper. Mix 1 lb. mustard, 3 table-spoonfuls curry-powder, and 2 table-spoonfuls turmeric to a smooth paste with a little cold vinegar. Remove the bag of spice from the vinegar, stir in the paste, and let all boil 6 minutes, stirring all the time: then pour over the vegetables, placed in a large earthenware jar. Cover the jar and let the contents get quite cold. Then turn out into a pan, mix well, and put into pickle bottles. Cork well and cover with bladder.

Red Cabbage.—Slice up the cabbage, lay it on a dish, and sprinkle it with plenty of salt. Let it remain 24 hours, then drain, and dry it in a cloth, and put it into a large jar. Boil vinegar, with spices in the proportion of 1 oz. whole black pepper and ½ oz. bruised ginger to 1 quart vinegar. When it is cold, pour it over the pickles. Then bottle and cork in the usual way.

Walnuts.—The walnuts should be gathered when quite young, and should be pierced by passing a large needle through them from end to end and also transversely. Make enough brine to cover them, in the proportion of 6 ozs. salt to each quart of water. Remove any scum that rises to the surface as the salt dissolves. Put in the walnuts, leave them for twelve days, changing the brine at the end of three days, and stirring daily. Spread them in single layers upon earthenware dishes, and expose them to the air until they turn quite black. Then prepare the pickle by boiling together for 5 minutes 2 quarts vinegar, 1 tea-spoonful

salt, 2 ozs. whole black pepper, 2 ozs. bruised ginger, ¼ oz. cloves, 6 small onions, 1 blade mace, and 2 ozs. mustard seed to every hundred walnuts. The walnuts should be ready in a jar, and the pickle poured on as soon as taken from the fire. When quite cold, bottle, and store in a dry place.

THE MAKING OF SAUCES.

Browning Sauce.—¼ lb. powdered lump-sugar, 1 oz. butter, 1 pint red wine, ½ oz. allspice, 6 cloves, 2 blades mace, 4 peeled shallots, 3 tablespoonfuls mushroom-ketchup, the rind of a lemon thinly peeled, and 1 tea-spoonful salt.

Put the sugar and butter in a clean pan over the fire and mix until frothy, when the pan should be raised and the wine added by degrees, the stirring being kept up the whole time. Then add the remainder of the ingredients, and boil for 10 to 15 minutes very carefully. Pour the sauce into a basin, and when cold remove the scum, and store in small bottles. A very small quantity of this sauce will flavour and colour soups, stews, entrées, and gravies.

Epicurean Sauce.—½ pint mushroom-ketchup, ½ pint walnut-ketchup, 2 wine-glasses port wine, 2 wine-glasses Indian soy, 3 ozs. shallots, ½ oz. cayenne, ½ oz. cloves, 1½ pint vinegar, and a little black pepper.

Mix all the ingredients well together in a pickle jar, cork it up and put it in a warm place; shake it every day for a fortnight, then strain through muslin and put it into small bottles, corking them up tightly.

Horse-radish Sauce.—3 ozs. horse-radish, 1 oz. pickled onions, 2 ozs. black pepper, 1 tea-spoonful salt, 1 oz. allspice, 1 quart vinegar.

Grate the horse-radish very fine, and mix it well with the spice, salt, and onions. Pound all together in a mortar, put it in a jar, pour the vinegar over it, let it stand sixteen days, then strain and bottle it. The sauce forms an excellent accompaniment to cutlets.

Mushroom-Ketchup.—1 peck mushrooms, ½ lb. salt. To each quart of liquor allow ½ oz. black pepper, ¼ oz. allspice, ½ oz. ginger, 2 blades mace.

Break the mushrooms up into a deep earthen pan and strew the salt among them, reserving the larger portion for the top. Let them remain two days, stirring them several times gently with a wooden spoon. At the end of two days turn them into a stew-pan, heat them slowly, and let them simmer for 20 minutes. Pour the liquid from them without pressure, strain and measure it. Boil it for ¼ hour, then add the spices, and boil quickly for nearly ½ hour. Pour it into jugs, let it stand till cold, and then pour it into bottles. Be careful to leave the sediment at the bottom of each jug. Cork and seal. The mushrooms should be picked in dry weather.

Tomato-Ketchup.—2 doz. ripe tomatoes, 1 oz. salt. To 1 quart of juice allow 2 ozs. mixed spice, consisting of 4 blades mace, 12 cloves, 1 tea-spoonful powdered ginger, and the remainder black pepper and allspice.

Slice the tomatoes and put them in a jar, with salt between each layer. Put the jar by the fire and stir its contents occasionally. Let them remain for three days, then press them through a sieve with a wooden spoon. Measure the liquid, put it into a stew-pan, and boil it with spices in the above proportion for 1 hour. Let it cool a little and pour into bottles.

Tomato Sauce.—To each 2 lbs. of pulp allow ½ pint chilli vinegar, ½ pint white wine vinegar, 2 ozs. garlic, 2 ozs. shallots, ½ oz. black pepper, 1 oz. salt.

Put ripe tomatoes into an earthenware jar, and let them bake all night in a cool oven till they are quite tender. Pulp them through a wire sieve and weigh. Add the vinegar, garlic, and sliced shallots, the pepper ground and sifted, and the salt. Boil all together until tender, and again pulp through a sieve. Once more boil until the sauce is of the consistency of cream, keeping it well stirred. Bottle again when quite cold, and cork up tightly.

Walnut-Ketchup.—100 young green walnuts, ½ lb. shallots, 1 head of garlic, ½ lb. salt, 2 quarts vinegar, 2 ozs. anchovies, 2 ozs. whole pepper, ¼ oz. cloves, ¼ oz. mace.

Pound the walnuts in a mortar until well bruised; put them in a jar with the chopped shallots, vinegar, garlic, and salt, and stir every day for ten days. Then strain the liquid, and boil it with the other ingredients for 30 to 40 minutes, skimming well. Strain again, and when cold pour it free from the sediment into small dry bottles and cork securely.

Worcester Sauce.—12 ozs. tamarinds, 5 ozs. shallots or onions bruised, ¼ lb. sliced tomatoes, ¾ oz. cayenne, 1½ oz. ground pimento, ¼ lb. salt, 5 pints water, 6 ozs. essence of anchovies, 1¼ pint Indian soy, 3 pints vinegar.

Put the tamarinds, onions, tomatoes, pimento, and salt into 5 pints of water. Let the mixture simmer for ½ hour. Strain it through a wire sieve while it is hot, pressing it through with a wooden spoon. Then add the essence of anchovies, Indian soy, and vinegar, and mix thoroughly. Put into bottles and cork tightly.

JAMS AND JELLIES.

There are a few simple rules which are of universal application in the making of jams and jellies:—

1. The preserving-pan (fig. 240) should be of brass, and must be kept spotlessly clean and bright.

2. A long wooden pot-stick should be used for stirring, and a long-handled table-spoon for skimming. The handle can easily be lengthened by attaching a piece of wood to it, so that the cook may stand at a convenient distance from the fire.

3. The fuel for the fire should be of coal and coke in equal quantities, and the pan should not be set upon it until it is perfectly clear and

smokeless. Should it be necessary to replenish the fire during the boiling, coke should be used for the purpose and not coal.

4. Pure cane-sugar should alone be used. There is no economy in using beet-sugar, as more is required to sweeten the jam, and it does not impart the same firmness to it.

5. Jam should boil quickly; if allowed to simmer it loses both colour and flavour.

6. To test if jam is sufficiently boiled, pour a spoonful of the jelly upon a cold plate. If it sets immediately, the jam is ready for pouring; if not, the boiling must be continued.

7. Defer skimming until the surface is entirely covered with thick scum, and then skim thoroughly.

8. Unless otherwise directed in the recipes, cover the pots while their contents are still hot. For this purpose use vegetable parchment exactly

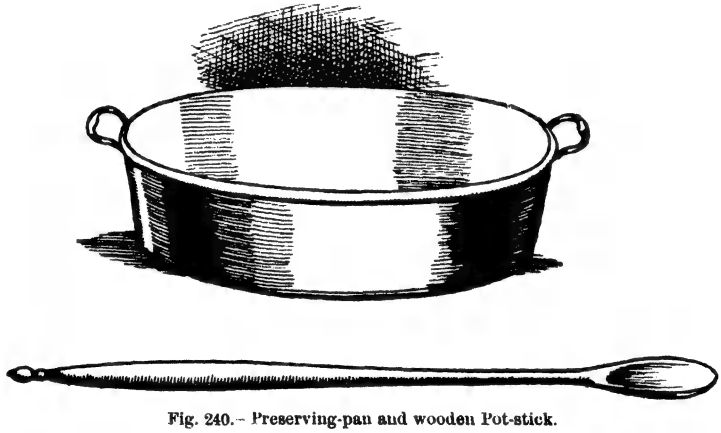


Fig. 240.—Preserving-pan and wooden Pot-stick.

the size of the inside circumference of the pots; dip each piece into good brandy, and lay one on top of the contents of each pot. Cover with a larger sheet of parchment previously softened in water, and tie securely.

Apple Jelly.—Peel and slice up 4 lbs. of apples into a preserving-pan containing 4 pints of water and the juice of half a lemon. Boil on a brisk fire until all the apples are quite dissolved, stirring them frequently; then pour the mash into a suspended jelly-bag, and pour back the first juice that runs through, so that the whole may run bright into the pan placed underneath to receive it. Boil the sugar, using 1 lb. to every pint of apple juice; add the juice; boil sharply for about 15 to 20 minutes, and then test, as described above. When done, remove from the fire, skim, and pour into pots.

This jelly is very good for dessert, or it may be served with hare instead of red currant jelly.

Apricot Jam.—Take apricots and crushed sugar, in the proportion of 3 lbs. of the former to 2¼ lbs. of the latter. Skin, halve, and stone the fruit, and place in an earthenware dish, with half the sugar strewn over.

Leave for 12 hours, then pour the syrup into the preserving-pan; add the remainder of the sugar, and stir until dissolved, then put in the apricots, and about half the kernels, blanched and sliced. Boil for about 30 to 40 minutes, test in the usual way, and cover when cold.

Black Currant Jam.—Free the currants from stalks and tops; put them in the pan with a little water, and boil; then add the sugar (14 ozs. to each pound of fruit), stirring it in gradually. Boil until it stiffens when tested; then pour into pots and cover when cold.

Blackberry Jelly.—Put the berries in a covered jar; set it in a pan of water over the fire, and let the water simmer so that the juice may run slowly. This will take about 1 hour. Then pour through a jelly-bag, a little at a time, and press the fruit just sufficiently to send all the moisture through. Measure the juice and allow 1 pound of sugar to each pint. The sugar should previously have been heated in the oven, but should not be allowed to get the least browned. Pour the juice (only) into a jelly-pan, and boil quickly for 20 minutes; then add the sugar and stir until it is all dissolved. Then skim, and let boil a few minutes longer. Test, and pour into hot jars.

Currant Jelly (Red, Black, or White).—Put the fruit into the preserving-pan with ½ pint water, and bruise the currants well. Stir the fruit on the fire until it begins to simmer, and then pour all into a hair sieve placed over a large pan. Next boil the sugar with the juice (12 ozs. of the former to each pound of the latter) and stir occasionally. After about 15 minutes' boiling remove the scum, and test. Pour into the pots, and when set, cover with brandied papers as explained above. Keep in a cool place, and cover and tie down a couple of days later.

Damson Jam.—For every 4 lbs. of fruit allow the same weight of sugar, and 1 pint of damson juice extracted as described for blackberry jelly. After the damsons have come to the boil, add the juice and boil a little longer; then add the sugar, and finish, allowing about the usual time. The juice should be hot when added to the fruit. Small fruit should be used.

Damson Jelly.—Extract the juice from the fruit as for blackberry jelly. Strain and measure the juice, boil it for 20 minutes, then add ¾ lb. sugar for each pint of juice, and finish boiling. Stir continually to prevent catching, and skim very carefully.

Damson Cheese.—12 lbs. damsons, 12 lbs. sugar, 1 quart water. Split the fruit, and place it in a preserving-pan with 1 quart of water. Put it on the fire, stir until it is dissolved, and then rub the pulp through a coarse sieve. Boil the sugar and add the pulp. Stir over a brisk fire while boiling sharp for about 20 to 25 minutes. When the jam drops slowly in somewhat wide drops from the spoon, it will be ready to be poured into the pots or moulds. The damson cheese, when turned out of these moulds into a glass dish, is ready to be set on the table for dessert. It may be garnished with rings of candied peel or with other fruit.

Gooseberry Jam (Green).—The fruit must be quite green, though fully

developed. Put the picked berries into a preserving-pan with just enough water to reach half-way up the quantity of fruit contained in the pan. Cover the pan over and set it on the fire to boil gently until the gooseberries begin to burst. It must then be removed to the side of the fire and allowed to remain there for about 1 hour; and set aside in a cool place until the next day, in order that it may regain a green colour. The gooseberries must then be boiled up and rubbed through a cane or wire sieve. Next, boil (with just enough sugar to dissolve it) as many pounds of sugar as there are of the pulp, pour in the pulp on to the sugar, and stir the jam on the fire till it is reduced sufficiently to admit of its hanging to the spoon in drops. Then skim and pour out.

Gooseberry Jam (Red).—Take red gooseberries quite ripe; pick and place them in a preserving-pan, with about 1 pint water to ½ bushel fruit. Stir them on the fire till they burst, and then rub them through a coarse sieve. Allow 1 lb. of sugar to every pound of pulp. Boil the sugar with just enough water to dissolve it, then add the pulp, and stir continuously until it is reduced sufficiently to hang to the spoon in drops as it is held up out of the jam. It should then be poured out.

Gooseberry Jelly.—Extract the juice by putting the berries in an enamelled sauce-pan over a very slow fire, stirring constantly with a silver spoon. When the juice has flowed abundantly, let the berries simmer till they shrink. Strain the juice through a jelly-bag, and weigh it. To every 3 lbs. of juice allow 1 lb. of white currant juice and 2 lbs. of cane-sugar. Boil the juice (without the sugar) quickly for 15 minutes, keeping it well stirred. Take it from the fire, throw in the sugar by degrees, and stir well until dissolved. Return the pan to the fire, and boil until done.

Greengage Jam.—12 lbs. ripe greengages, 12 lbs. sugar. Split the fruit and place it in a preserving-pan with 1 quart of water, and stir it on the fire until dissolved; then rub the pulp through a coarse sieve into a white pan. Boil the sugar with just enough water to dissolve it, and when it is thoroughly boiling, add the pulp. Stir on the fire while the jam boils sharply for about 25 minutes, and, as soon as it hangs to the end of a spoon dipped into it, remove it from the fire, and pour into the pots.

The following is another method. Choose greengages that are not over-ripe; allow ¾ lb. sugar to every pound of fruit. Remove the stones and skins, and strew over the plums about half the sugar. Let them stand for 5 or 6 hours. Then put them into a preserving-pan, and let them simmer until reduced to pulp. Add the remainder of the sugar, and boil until a little of the syrup, poured upon a plate, becomes thick and firm. A few minutes before the jam is taken from the fire, add a quarter of the kernels, blanched and sliced.

Orange Marmalade.—6 lbs. of rind and juice combined, 6 lbs. sugar. Cut the oranges into halves; squeeze out the juice through a sieve into a basin, boil the rinds free from pips in plenty of water until sufficiently soft to admit of a straw being easily run through them; drain them and throw them into cold water to steep for 3 hours, and afterwards drain them on

a sieve; scrape out all the white pith, and shred the rinds in straw-like filaments. Boil the sugar; add the rinds and the juice; boil for 20 minutes over a brisk fire, stirring the while, and pour out when done. Cover down when cold.

Another method. Wipe the oranges and slice them up as thin as possible: take out the pips. To each pound of sliced fruit add 3 pints of water, and let it stand for 24 hours. Boil till the chips are tender; leave them again for 24 hours; then weigh the fruit and water together, and to every pound allow 1½ lb. sugar. Boil the whole till it jellies and the chips are transparent.

If the pips are placed in a basin, covered with cold water, and left for 24 hours, a jelly is formed. This can be strained off and added to the fruit before boiling. Many consider this a great improvement.

Plum Jam.—This is made in the same manner as greengage jam (which see).

Strawberry Jam.—Pick the berries, and discard all that are unsound and over-ripe. Weigh them, and use ¾ lb. loaf-sugar for each pound of fruit. Put a layer of berries into the preserving-pan, then a layer of sugar, and alternate layers of berries and sugar until the pan is three parts full. Remove the scum as it rises, and let the jam boil until a little poured on a plate sets quickly. Take the pan from the fire, let the contents cool for a few minutes, and then pour into jars.

Strawberry Jelly.—Pick the strawberries and put them in an enamelled stew-pan over a very slow fire. Stir with a silver spoon, and when the juice has flowed from them abundantly, let them simmer until they shrink, but be sure to remove them from the fire before the juice becomes thick. Strain through a jelly-bag or fine muslin; measure, and for each pound of juice allow 14 ozs. coarsely-pounded sugar. Boil the juice alone for 15 minutes, keeping it well stirred. Take it from the fire, throw in the sugar by degrees, and stir it until dissolved. Return the pan to the fire and boil quickly until it jellies, which will take about 15 minutes. If it is boiled too long the colour will be spoilt.

BOTTLED FRUITS IN SYRUP.

To prepare Syrup for Fruit.—Put 3 lbs. of white cane-sugar in a preserving-pan, and add to it 1 quart of water whisked up with half the white of an egg. Allow the sugar to dissolve, stirring it well, then put the pan on the fire and stir until it boils. Put it on the side of the fire, and as it boils add very gradually another pint of cold water. This will make the egg come to the top, and after boiling a minute or two, the sugar will become quite clear and bright. Strain it through a napkin for use. If not all wanted at once, bottle it and cork tightly. Where syrup is mentioned in the following recipes, this is what is referred to.

Cherries in Syrup.—Red Kentish cherries are best suited for preservation in this way. They should be freshly gathered and not too ripe. The cherries should be picked from their stalks into the bottles, and shaken down lightly without bruising. The bottles should then be filled up with syrup, corked, and tied down, each being enveloped in a bag of coarse material to prevent waste through breakage.

They should then be placed in an upright position upon a grating in a large pot or pan, or in a copper. Pour in sufficient water to reach rather more than half-way up the sides of the bottles, cover the tops all over with a wet cloth, put on the lid of the vessel containing the bottles, and heat. After the water has come to the boil allow 10 minutes of gentle ebullition. Do not remove the bottles until the water has cooled. These general directions are applicable to most of the following recipes.

Currants (Red or Black) in Syrup.—Currants must be gathered in dry weather, and picked carefully from the stalks into the bottles to avoid tearing the berries. Shake them down closely, and fill up with syrup made as directed. Cork and tie down, and proceed as for cherries, but only allow 8 minutes of gentle ebullition.

Green Gooseberries in Syrup.—Select the berries just before they are quite ripe. Pick into the bottles and pack close without bruising. Fill up the bottles with syrup, cork and tie down. Then proceed as for cherries.

Peaches Brandied.—Peel 4 lbs. of peaches. Make a syrup of 4 lbs. of sugar and enough water to dissolve it. Let this come to the boil; put the fruit in, and let it boil for 5 minutes. Remove the peaches carefully, and let the syrup boil for 15 minutes longer until it thickens. Add 1 pint of the best brandy and remove at once from the fire. Put the fruit into glass jars, and pour the hot syrup over it.

Peaches Pickled.—Peel 10 lbs. of peaches, and let them lie in 4½ lbs. of sugar for 1 hour. Drain off the juice, and put it on to boil with a cup of water. Boil until the scum ceases to rise. Skin and add the fruit, and boil for 5 minutes. Take out the peaches, and spread them upon dishes to cool. Add to the syrup 1 oz. cloves, ½ oz. mace, ½ oz. cinnamon, and 1 quart vinegar. Boil for 15 minutes longer, and pour over the fruit in glass jars. Stick a clove in each peach.

Pears in Syrup.—When the pears are not large they may be peeled whole, but when large they should be divided into halves or quarters. Drop each, as it is peeled, into a pan containing cold water slightly acidulated with lemon-juice and a pinch of crushed alum. Parboil the pears in this water without allowing it to boil, and, when they are about half done, change the water and repeat the process. As soon as they are done, drain them on a sieve, and fill the bottles carefully and neatly without pressure. Fill up with syrup slightly acidulated with citric acid and alum. Cork and tie down. Finish as for cherries, boiling for 15 minutes.

Plums in Syrup.—Large plums should be pricked with a needle and dropped one by one into a preserving-pan containing hot syrup just off the fire. When all the fruit is in the syrup, cover it to keep out the dust.

and set the pan over a slow gas-stove or smothered coke fire until the syrup becomes quite hot again. The plums must then be removed carefully with a silver spoon into a white pan, and set aside until the next day, in order that they may become charged with sufficient syrup to give them substance. On the day following fill the bottles with the plums so far prepared, let the syrup boil up, skim it, and, when it is nearly cold, fill up the bottles, cork, and tie down. Finish as for cherries, boiling for 15 minutes.

Quinces in Syrup.—Pare, core, and quarter the fruit. Boil it in clear water until it is tender but not broken. Take it out carefully and throw away the water. Make a syrup by taking ½ lb. sugar to each pound of fruit, and 1 pint water to every 3 lbs. sugar. When the syrup boils put in the fruit and let it cook as slowly as possible for 1 hour, or more if the fruit does not break. It should then be a bright-red colour, and the syrup should be jelly-like. Pour the fruit carefully into glass jars and pour the syrup over. Cover tightly.

Raspberries or Strawberries in Syrup.—Pick the raspberries into bottles, and fill up with syrup. Do not cork down, but place the bottles upright on a grating in an open pot with cold water half-way up the sides of the bottles. Set the pot on the fire, and allow the water just barely to simmer for 5 minutes. Then remove the fruit from the fire, and as soon as the bottles have partially cooled, gently pour off the syrup into a clean copper preserving-pan. Add one-fourth part of fresh filtered red currant juice; let the mixture boil up, skim it, and fill the bottles. Cork and tie down, and boil gently for 8 minutes, as for cherries.

Strawberries may be preserved in the same way.

FRUIT SYRUPS.

Cherry Syrup.—1 pint of syrup, made as directed under "Bottled Fruits", and 1 pint of filtered cherry juice made by pounding 2 lbs. Kentish cherries with ½ lb. currants. Mix these ingredients cold, fill the bottles, cork and tie down, put them in a pan of cold water reaching about two-thirds up the sides of the bottles, bring to the boiling point, and boil gently for 6 minutes. When the syrup is cold dip the nozzles of the bottles in sealing-wax, and stack them in bins in a cold cellar.

Currant Syrup, Black or Red.—1 pint of plain syrup, and 3 gills of currant juice strained through a hair sieve. Mix well together, and proceed as directed for cherry syrup.

Marsh-mallow Syrup.—1 pint of plain syrup, 1 oz. shred marsh-mallow roots boiled in 1 quart water until reduced to ½ pint and strained off, ½ gill orange-flower water, and 1 oz. gum-arabic dissolved in 2 ozs. hot water. Mix these ingredients thoroughly, fill the bottles and tie them down, put them in a pan with cold water, and boil gently for 6 minutes. When the syrup is cold dip the nozzles in bottle-wax, and keep them in a leaning

position in a cool cellar. Marsh-mallow syrup is considered excellent for coughs.

Orange Syrup.—1 pint of plain syrup made according to recipe given, the rind of 4 oranges rubbed on pieces of loaf-sugar which is afterwards scraped off, ½ pint strained orange juice, and the juice of 2 lemons. Allow the orange rind sugar to soak in the syrup for 6 hours, and then add the juice of the oranges and lemons. Stir well together, and fill pint bottles with the mixture. Cork, and tie down, and finish as in preceding recipe.

Pine-apple Syrup.—1 lb. peeled ripe pine-apple, beaten to a pulp with 8 ozs. lump-sugar in a mortar. Add ½ pint water, and boil for 15 minutes. Strain through a silk sieve, and add 1 tea-spoonful of acetic acid. Add the above ingredients to 1 pint of plain syrup, and finish as directed for marsh-mallow syrup.

Raspberry and Strawberry Syrup.—1 pint of plain syrup, 1 pint of filtered raspberry juice, and 1 tea-spoonful of acetic acid. Mix these ingredients together cold, and proceed as directed for currant syrup.

Strawberry syrup is prepared in the same manner.

CORDIALS.

Aniseed Cordial.—To 1 pint plain syrup add 1 pint good brandy and 30 drops of essence of aniseed. Use as a cordial either mixed with water or not, as preferred.

Cherry Brandy.—Equal weights of morella and black cherries, and 1 lb. strawberries to 6 lbs. cherries. Wipe and prick the fruit, or bruise it with a stick. Put it in a cask with the following to every pound:—5 ozs. sugar, 1 pint brandy, 2 cloves, grated nutmeg and cinnamon powder to cover a threepenny piece, and a sprig of mint. The cracked stones of a fourth of the cherries should be added. Cover lightly, and stir every day for ten days, then close, and in three months the brandy may be bottled. It requires careful straining.

Clove Cordial.—1 pint brandy, ¼ pint cherry brandy, 1 pint syrup, 2 ozs. rectified spirits of wine, and 10 or 12 drops oil of cloves. Heat the syrup to nearly boiling point, then add singly ½ pint water and the other ingredients except the clove oil, and let the mixture cool. When it is quite cold add the oil of cloves. Bottle, and keep in a cool place.

Ginger Brandy.—Macerate an ounce or two of root ginger in a bottle of brandy and leave for a few days. Pour off the liquid and filter. Ginger essence may be used in place of root ginger.

Ginger Cordial.—To 1 pint best brandy add 1 pint plain syrup and 4 ozs. essence of ginger. Strain and bottle. When it is required for use add 1 table-spoonful to 1 wine-glassful of water. A useful cordial may be made by adding the ginger to the syrup without the brandy.

Orange Gin.—Steep 1 oz. dried orange-peel (equal parts of Seville and

Rum Punch (or Milk Punch).—Put the following ingredients into a 2-gallon stone jar:—1 quart brandy, 1 quart rum, ½ pint strong infusion of green tea, the juice of 12 lemons, the thin rind of 4 lemons, 1 small nutmeg grated, 1 stick cinnamon well crushed, 12 cloves crushed, 30 coriander seeds crushed, 2 lbs. pine-apple cut in very thin slices, and 2 lbs. lump-sugar. Pour 2 quarts boiling water into this, stir all together, tie a bladder over the top of the jar, and set it aside to allow the ingredients to steep undisturbed for a couple of days. At the end of that time boil 2 quarts new milk, add this to the other ingredients, mix thoroughly, and an hour afterwards filter the punch through a clean jelly-bag. Then bottle off, cork down tightly, and keep the bottles in a good cellar. The flavour is much improved by icing when required for use.

HOME-MADE WINES.

Strange as it may seem to us nowadays, England was at one time a wine-producing country of considerable repute. Doomsday Book proves that wine was made in Essex, six acres producing 160 gallons. In the counties of Gloucester, Worcester, Hereford, Somerset, Cambridge, Essex, and Surrey, there are lands which bear the name of vineyards, many of them having been attached to monasteries whose ruins are still in the vicinity. In regard to the Vale of Gloucester, William of Malmesbury says: "There is no province in England which has so many and good vineyards, neither on account of their fertility nor the sweetness of the grape". Besides the counties just mentioned, the vine was cultivated in Hertford, Middlesex, Norfolk, Suffolk, Kent, Hants, Dorset, and Wilts, but not apparently in any county north of Cambridge. Hence it may be concluded that the vine did not yield any profit if grown northward of that place. Some people are of opinion that the neglect of viticulture in this country is owing to a marked alteration of climate, but there seems to be no trustworthy grounds for this belief. It is more likely that the dissolution of the religious houses, and the importation of wines from France at a cheaper rate than they could be produced here, were the causes which led to the vine industry falling into desuetude. There seems, indeed, to be no climatic reason why this industry should not be revived, or why

the inhabitants of the South of England, who have favourably-situated ground available, should not make their own wines from the produce of their own vineyards. The late Marquis of Bute made some highly successful experiments in this direction on his South Wales estate. Enormous crops of grapes are now gathered yearly from his two open-air vineyards at Castell Coch and Swanbridge, about seven miles from Cardiff, which produce a wine resembling in flavour and character a first-class still champagne. These wines have been sold at the high average price of £75 per hogshead, while some which had been two years in bottle realized, at public auction, no less than 115*s.* per dozen.

During the last century, and in the beginning of the present one, when popular taste demanded heavy, heady wines, the port that was drunk contained but little of the product of Oporto, and might almost be described as home-made. It is narrated of Lord Pembroke, the grandfather of Lord Palmerston, that, when wine was set before his guests, he would say to them, "There, gentlemen, is my champagne, my claret, my sherry; I am no great judge, and I give you these on the authority of my wine merchant: but I can answer for my port, for I made it myself". The following is Lord Pembroke's recipe for "port wine", which we give as a curiosity, and not that it may be followed by our readers:—8 gallons genuine port, 40 gallons cider, brandy to fill the hogshead. Elder tops will give it the proper roughness, and cochineal whatever degree of colour may be desired.

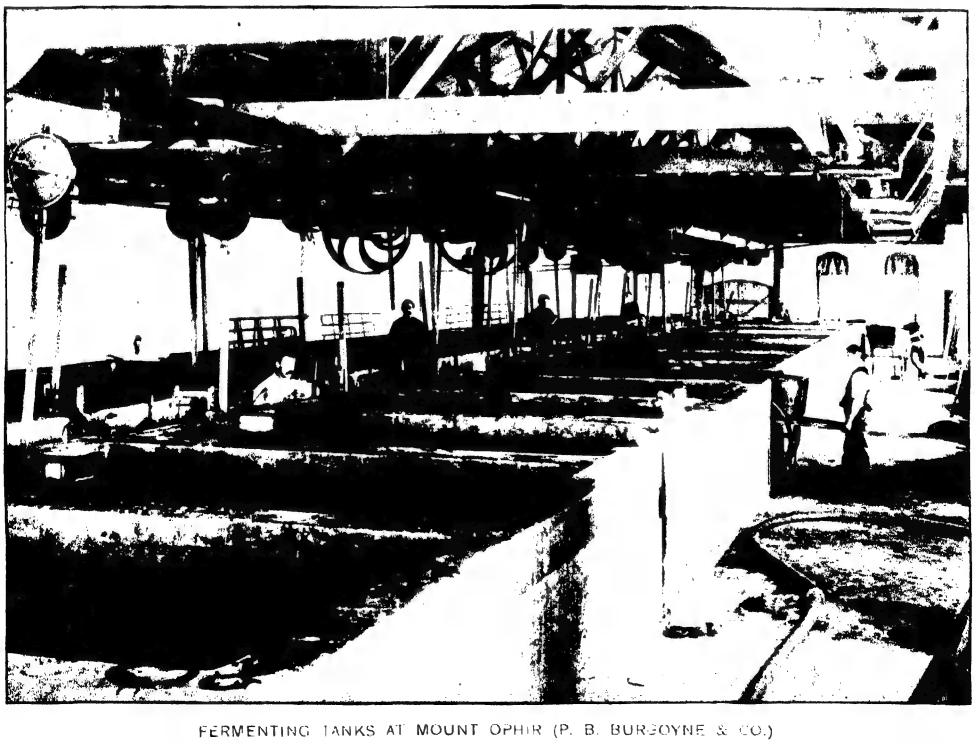
Although wine-making from grapes can no longer be considered a home industry, yet there are many other fruits from which very wholesome and palatable drinks are made. In the forefront of these must be placed cider, a beverage which was at one time the national drink of Englishmen, and one which is rapidly regaining its former place in popular favour. It is manufactured chiefly in the counties of Devon, Somerset, Gloucester, Hereford, and Worcester, and, to a small extent, in Kent and Norfolk.

It would be impossible in a work of this nature to give satisfactory directions for the manufacture of cider, as much depends upon the kind of apples used, and the quality of the soil upon which they are grown. The method suitable for one kind of apples would be totally inapplicable to another, and might result in producing a liquor quite undrinkable. Those, therefore, who wish to turn the surplus produce of their orchards into cider should seek the advice of a local expert. With cider may be classed perry, a beverage of the same kind made from the expressed juice of pears.

Blackberry Wine.—Press the juice out of the required quantity of ripe berries, put it in a wide-mouthed jar, and let it stand for 36 hours to ferment. Skim it well, measure the juice, and to every gallon add 1 pint of water and 3 lbs. loaf-sugar. Let it stand in an open vessel for 24 hours, then strain, and put it in a sherry or spirit cask. In about six months it will be ready for bottling; it should remain another six months in bottle before being used.

Cowslip Wine.—Boil together the following ingredients for ½ hour:—

GATHERING THE GRAPES, MOUNT OPHIR, VICTORIA



FERMENTING TANKS AT MOUNT OPHIR (P. B. BURGOYNE & CO.)

AN AUSTRALIAN WINERY

12 lbs. loaf-sugar, the juice of 4 lemons, the whites of 4 eggs, and 6 gallons water. Skim well, and put in a dry, clean tub, with the rinds of the lemons very thinly pared. When the liquid is lukewarm add a slice of dry toast with yeast on both sides. Let it stand in a cool place for four days to ferment. Strain, and put into a cask previously rinsed out with pale brandy. In six months' time add 2 pecks of fresh cowslips. Close the cask, and keep for another six months before bottling.

Currant Wine.—Currant wine may be made of either black or red currants. Put 6 quarts currant juice into a clean, dry cask, add 12 lbs. sugar, and, when this is dissolved, pour in 6 quarts water. Leave in a cool place to ferment. Some of the liquor should be kept back, and, when the wine is still and has been skimmed, the cask should be filled with it. A bottle of good brandy should be added just before closing the cask. Let the wine remain in cask at least twelve months before bottling.

Damson Wine.—Remove the stalks from 4 gallons of damsons, and add 4 gallons water, previously boiled in order to soften it; stir every day for four or five days. Then add 3½ lbs. sugar to every gallon of liquor. When dissolved, put in a clean cask, with a bottle of brandy to every 4 gallons. Let the wine remain a year in cask before bottling, and another year in bottle before being used.

Elderberry Wine.—Put 3 gallons of elderberries in 9 gallons of water, with 2 oz. ginger, 1 oz. allspice, and ½ oz. cloves, the spices being crushed and tied loosely in a muslin bag. Boil very slowly for 1 hour, strain, and add 4 lbs. sugar to each gallon. Mix in a tub with 3 ozs. cream of tartar. After two days pour into a cask, and stir daily. When fermentation has quite ceased close the barrel. A bottle of brandy may be added if desired. In six months the wine will be ready for bottling. The longer it is kept in bottle the better, as no wine improves more with age.

Ginger Wine.—12 ozs. of bruised, unbleached ginger, the rinds of 6 oranges and 6 lemons, 30 lbs. sugar, and 12 gallons water. Boil all together for ¾ hour. Skim well, and pour into a tub or earthenware vessel. When lukewarm, add 8 lbs. finely-chopped raisins, the juice of the oranges and lemons, and 4 table-spoonfuls yeast. Stir every day for two weeks. Put into a barrel with 1 oz. isinglass, or gelatine of good quality. Add 1 quart of London gin, or brandy if preferred. In four months the wine will be ready for bottling.

Gooseberry Wine.—Pound 10 quarts picked gooseberries with a parboiled beet-root, till they are thoroughly incorporated. Boil 10 quarts water to soften it, and, when it is cold, add it to the pounded fruit, stir well daily for five or six days. Strain through a jelly-bag, repeating the process if necessary until quite clear. Add 9 lbs. sugar, the rinds of 3 lemons, and ½ oz. bruised ginger, with ½ oz. isinglass previously soaked in some of the liquor. When the fermentation has ceased add a bottle of brandy. The wine should be kept a year in cask. Bottle in champagne bottles, and wire down the corks.

Orange Wine.—Boil together very slowly for 50 minutes, 10 gallons

water, 25 lbs. loaf-sugar, and the whites of 6 eggs, and skim well. Put the thin rinds of 24 Seville oranges in a tub, and pour the boiling liquor over them. When it is tepid add the strained juice of the oranges and 4 table-spoonfuls of yeast. Let it ferment for a few days, stirring every day; then put into a cask with a bottle of brandy, and in three months it will be ready for bottling.

Raisin Wine.—To every 8 lbs. raisins take 1 gallon water which has been previously boiled and allowed to get cold. Remove the large stalks from the raisins, put them into a tub, pour the water over them, and press them down. Stir every day for four weeks, strain, and squeeze as dry as possible. Put the liquor into a barrel, and, when quite still, bung closely, and leave for twelve months. Then draw it off into a clean cask, filter the dregs through a jelly-bag, and add 1 oz. isinglass. A quart of brandy may be added if desired. Keep the wine in the second cask for at least twelve months, and then bottle.

Rhubarb Wine.—Take 40 lbs. freshly-cut rhubarb, slice without peeling, and soak for two days in 10 gallons cold water, previously boiled, in a covered vessel. Skim, press out the juice, strain through a sieve, and add 25 lbs. cane-sugar in lumps. Stir well, and when the sugar is dissolved put into a cask. When the liquid is quite still add a bottle of brandy, and ½ lb. sugar-candy. Bung up tightly, and let it stand three months. Then rack it off, filter perfectly clear, and return to the cask, adding the rind of 4 oranges and 1 oz. isinglass dissolved in 2 quarts of the wine. Bung up the cask again, and let it remain a year in a cool place. Then bottle, cork, and wire down.

Sloe Wine.—Take 1½ gallon of cold soft water to each gallon of sloes. Pour the water over the sloes, and stir daily for six days. Strain, and for every gallon of liquor allow 3½ lbs. sugar. When this is dissolved, put the liquor in a barrel, adding a pint of London gin for every 2 gallons. Keep in the cask for at least a year before bottling.

Cherry Wine.—Pick Morello cherries, not overripe, from their stalks: mash them in a mortar and pan to detach the pulp without bruising the stones, and let the mass stand for 24 hours. Press the pulp through a coarse hair sieve, and to every 3 gallons add from 8 to 9 lbs. of loaf-sugar. Put the mixture into a cask, add yeast, and let it ferment. Rack the wine from its lees as soon as it becomes clear. The stones may be broken, placed in a bag with the bruised kernels, and hung in the wine while it is fermenting. The wine will thus acquire a nutty flavour.

Mulberry Wine.—Gather the mulberries before they are quite ripe, bruise them in a tub, and to every quart of the bruised berries put the same quantity of water. Let the mixture stand for 24 hours, and then strain it through a coarse sieve; having added to every gallon of the diluted juice 3 or 4 lbs. of sugar, allow it to ferment in the usual manner. When fine in the cask, bottle it.

Apricot Wine.—Take apricots when nearly ripe, remove the stones,

and bruise the pulp in a mortar. To 8 lbs. of the pulp add 1 quart of water; allow the mixture to stand for 24 hours, and then squeeze out the juice; add to every gallon of it 2 lbs. of loaf-sugar; put it into a cask and let it ferment. When perfectly clear, bottle it.